
This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

<https://books.google.com>







ARMY MEDICAL DEPARTMENT

REPORT

FOR THE YEAR 1875.

VOLUME XVII.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE,
BY HARRISON AND SONS,
Printers in Ordinary to Her Majesty.

1877.

TO THE RIGHT HONOURABLE
THE SECRETARY OF STATE FOR WAR.

SIR,

IN accordance with instructions laid down for the conduct of business by the Director-General and Heads of Branches of the Army Medical Department, I have the honour to submit the accompanying Report on the Health of the Army in 1875, and on various matters connected with the duties of the Officers of the Department.

The Statistical, Sanitary, and Medical Reports have been drawn up by the Officers in charge of the respective Branches.

I have the honour to be,

SIR,

Your most obedient

Humble Servant,

W. M. MUIR,

Director-General.

ARMY MEDICAL DEPARTMENT,
December 1876.

CONTENTS.

	PAGE
Letter from the Director-General to the Secretary of State for War	iii

REPORT.

I. Summary of the Health of White Troops at all Stations	1
II. On the Health of the Troops serving in the UNITED KINGDOM—	
1. Sickness and Mortality	3
Admissions and Deaths by Classes of Diseases	4
" " in the different Military Districts	5
Remarks on the Prevalence of the principal Diseases at these	5
Prevalence of Primary Venereal Sores at each of the large Stations.	15
Admissions, Deaths, and Invaliding, &c., from the different Arms of the Service	19
Deaths among the Soldiers and among the Pensioners placed upon the Pension List in 1875	20
Admissions, Deaths, and Invaliding by Classes of Diseases in the different Arms	21
Remarks upon ditto	24
Deaths and Invaliding by Phthisis, &c., in the different Arms	25
Admissions, Deaths, and Invaliding, &c., in each Corps	26
" " " of Corps which returned from India	39
Relation of Admissions into Hospital to Age	39
Vaccination	42
Aldershot Camp : Sanitary State of	42
Eastern District, ditto	42
South-Eastern District, ditto	43
Chatham District, ditto	44
Woolwich ditto	45
Southern District, ditto	45
Netley, ditto	47
Western District, ditto	48
Northern District, ditto	51
North British District ditto	51
Ireland { Dublin District, ditto	52
{ Belfast District, ditto	52
{ Cork District, ditto	52
2. On the Extent of Invaliding	59
3. On the Number constantly Sick in Hospital	60
4. On the Influence of Age on the Mortality	61
5. On the Recruiting of the Army	61
Number of Recruits Inspected and Rejected	61
Native Countries of the Recruits inspected	62
Number inspected for each Arm of the Service	62
Causes of Rejection of Recruits found unfit	63
Ages of the Recruits	64
Height of the Recruits	65
Weight of the Recruits inspected by Army Medical Officers	65
Extent of Education of Recruits inspected	66
Previous Occupations of Recruits	66

III. On the Health of the Troops serving in the MEDITERRANEAN—

1. Sickness and Mortality	67
I. Gibraltar : Sickness and Mortality at	67
Admissions and Deaths by Classes of Diseases	69
Remarks on ditto	70
Sickness of Officers, Women, and Children	72
Sanitary state of the Command	73
II. Malta : Sickness and Mortality at	74
Admissions and Deaths by Classes of Diseases	76
Remarks on ditto	77
Royal Malta Fencible Artillery, Admissions and Deaths among, by Classes of Diseases	79
Sickness of Officers, Women, and Children in Malta	80
Sanitary state of the Command	81
2. On the Extent of Invaliding among Troops serving in the Mediterranean	83
3. Mean Daily Sick of ditto	84
4. On the Influence of Age on the Mortality	84

IV. On the Health of Troops serving in the DOMINION OF CANADA—

1. Sickness and Mortality in Canada	85
Admissions and Deaths by Classes of Diseases	86
Remarks on ditto	87
Sickness of Officers, Women, and Children	88
Sanitary state of the Command	88
2. On the Extent of Invaliding	89
3. Mean Daily Sick	89
4. Influence of Age on the Mortality	90

V. On the Health of the Troops serving in BERMUDA—

1. Sickness and Mortality in Bermuda	91
Admissions and Deaths by Classes of Diseases	92
Remarks on ditto	93
Sanitary state of the Command	94
2. On the Extent of Invaliding among the Troops serving in Bermuda	94
3. Mean Daily Sick	95
4. Influence of Age on the Mortality	95

VI. On the Health of the Troops serving in the WEST INDIES—

1. Sickness and Mortality of White Troops	96
Admissions and Deaths by Classes of Diseases	97
Remarks on ditto	97
Sickness and Mortality of Black Troops	99
Remarks on ditto	100
Sanitary state of the Command	102
2. On the Extent of Invaliding among Troops serving in the West Indies and Western Africa	103
3. Mean Daily Sick among Troops in West Indies	104
4. Influence of Age on the Mortality	104

VII. On the Health of the Troops serving in WESTERN AFRICA—

1. Admissions and Deaths by Classes of Diseases	105
Remarks on ditto	106
Sickness and Mortality of Officers	108
Sanitary State of the Command	108

CONTENTS.

vii

	PAGE
VIII. On the Health of the Troops serving at the CAPE OF GOOD HOPE AND ST. HELENA—	
1. Sickness and Mortality	108
Admissions and Deaths by Classes of Diseases	110
Remarks on ditto	110
Sickness of Officers, Women, and Children	112
Sanitary state of the Command.. .. .	112
2. On the Extent of Invaliding	114
3. Mean Daily Sick	115
4. Influence of Age on the Mortality	115
IX. On the Health of the Troops serving in the MAURITIUS—	
1. Sickness and Mortality	116
Admissions and Deaths by Classes of Diseases	117
Remarks on ditto	117
Sanitary state of the Command	119
2. On the Extent of Invaliding	121
3. Mean Daily Sick	122
4. Influence of Age on the Mortality	122
X. On the Health of the Troops serving in CEYLON—	
1. Sickness and Mortality of the White Troops	123
Admissions and Deaths by Classes of Diseases	124
Remarks on ditto	124
Sickness of Officers, Women, and Children	126
Sickness and Mortality of Asiatic Troops	126
Sanitary state of the Command	126
2. On the Extent of Invaliding	127
3. Mean Daily Sick	128
4. Influence of Age on the Mortality	129
XI. On the Health of the Troops serving in CHINA and STRAITS SETTLEMENTS—	
1. Sickness and Mortality of European Troops	130
Admissions and Deaths by Classes of Diseases	132
Remarks on ditto	132
Admissions and Deaths of Asiatic Troops	134
Sickness of Officers, Women, and Children	134
Sanitary state of the Command.. .. .	135
2. On the Extent of Invaliding	137
3. Mean Daily Sick	137
4. Influence of Age on the Mortality	138
XII. On the Health of the Troops serving in the FIJI ISLANDS	138
XIII. On the Health of the European Troops serving in INDIA—	
1. Sickness and Mortality	139
i. Bengal	139
Admissions and Deaths by Classes of Diseases	140
Remarks on ditto	140
Admissions and Deaths at each Station	142
Admissions and Deaths by Classes of Diseases in each of the Military Divisions	145
Remarks on ditto	149
Prevalence of Cholera	151
Sickness and Mortality, &c., in each Corps serving in the Presidency	158
Service in India in relation to Sickness	164
Sickness of Officers, Women, and Children	165

	PAGE
II. Madras	
Admissions and Deaths by Classes of Diseases	167
Remarks on ditto	168
Admissions and Deaths at each of the principal Stations	170
Admissions and Deaths by Classes of Diseases in each of the Divisions	172
Remarks on ditto	174
Sickness and Mortality, &c., in each Corps serving in Madras	177
Sickness and Mortality by Periods of Service.. .. .	179
Sickness of Officers, Women, and Children	180
III. Bombay	
Admissions and Deaths by Classes of Diseases	181
Remarks on ditto	182
Admissions and Deaths at each of the principal Stations	183
Admissions and Deaths by Classes of Diseases in each of the Military Divisions	185
Remarks on ditto	186
Prevalence of Paroxysmal Fevers at the principal stations	188
Sickness and Mortality, &c., in each Corps serving in Bombay	191
Health of Corps in relation to period of Service in India	194
Sickness of Officers, Women, and Children	196
Sanitary state of the Command.. .. .	197
2. On the Extent of Invaliding from India	198
3. Mean Daily Sick in each of the Presidencies	199
4. Influence of Age on the Mortality	200
Sickness, Deaths, and Invaliding at different Ages in Bengal and Bombay	201
Sickness, Deaths, and Invaliding by Periods of Service in Bengal and Bombay	201
XIV. On the Health of Troops ON BOARD SHIP	202
1. Troops proceeding on Foreign Service	202
2. „ returning from ditto	203
3. „ passing from one Station to another	205
4. Invalids returning to England	205

APPENDIX.

No. I. Report on Hygiene for part of 1875. By Dr. de Chaumont	206
II. Report on the Prevalence of Ague and Malaria at Tilbury Fort, in connection with the source of Water Supply. By Surgeon-Major J. G. Faught	212
III. Special Report on Puchmurree, its Climate and Medical Topography. By Surgeon-Major F. P. Staples	217
IV. Medical Report of the Sunghie-Ujong Field Expedition, November 1874 to 1875. By Surgeon J. McNamara, A.M.D.	245
V. Extract from Medico-Topographical Report for Nowgong, Bundelcund. By Surgeon J. B. Hannah, M.D., A.M.D.	259
VI. Andaman Islands. By Surgeon-Major Hodder, M.B., A.M.D.	261
VII. Meteorological Observations taken at Foreign Stations in 1874	266
VIII. „ „ „ „ 1875	280
IX. Alexander Memorial Fund	290

ARMY MEDICAL DEPARTMENT REPORT FOR 1875.

STATISTICAL REPORT.

THE average annual strength of the troops serving at home and abroad in 1875, as computed from the returns received by the Army Medical Department, was 169,235 non-commissioned officers and men (exclusive of the Royal Malta Fencible Artillery, the 1st and 2nd West India Regiments, and the Gun Lascars at Ceylon, and at Hong Kong, which are not recruited at home) ; the admissions into hospital in this force were 166,919, and the deaths, 2,169. The rates represented by these numbers are for admissions into hospital, 986·3, and for deaths, 12·47 per 1,000 of the average annual strength, the latter calculated on a strength of 173,888, which includes detached men.

The statistics of some of the most important of the results of sickness, in every Command in which the troops were stationed, are exhibited in the following Table :—

1875.

White Troops.	Average Annual Strength.	Admitted into Hospital.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.
Troops at Home and Abroad .. }	169,235	166,919	2,169	3,277	3,351	7679·75
United Kingdom ..	88,147	73,279	870	..	2,394	3568·00
Gibraltar.. ..	4,719	2,930	26	105	58	181·00
Malta	4,506	4,083	47	152	85	194·32
Dominion of Canada ..	1,684	1,109	15	33	22	54·17
Bermuda	1,902	1,144	21	38	20	62·91
West Indies	1,131	953	10	26	24	47·25
Cape of Good Hope } and St. Helena .. }	2,741	2,126	20	35	18	108·27
Mauritius	415	549	6	21	1	16·98
Ceylon	1,033	806	14	44	13	47·63
China and Straits } Settlements.. .. }	1,861	1,779	26	79	27	74·90
Fiji Islands	17	33	..	..	..	2·41
India	59,344	77,373	1,099	2,744	689	3326·91
On Board Ship	1,735	755	15	..	..	..

Troops at Home and Abroad.

Troops at Home and Abroad.

1875.—Annual Ratio per 1,000 of Mean Strength.							Average Sick-time to each man.	Average duration of each case of Sickness.
White Troops.	Admitted into Hospital.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.			
Troops at Home and Abroad }	986·3	12·47*	19·36	19·80	45·38	16·56	Days.	Days.
United Kingdom	831·3	9·36*	..	25·80	40·47	14·77		17·77
Gibraltar	620·9	5·50	22·25	12·29	38·36	14·00		22·55
Malta	906·1	10·43	33·73	18·86	42·21	15·42		17·34
Dominion of Canada ..	658·6	8·90	19·60	13·06	30·40	11·10		16·85
Bermuda	601·4	11·05	19·93	10·52	33·08	12·07		20·07
West Indies	812·6	8·84	23·00	21·22	41·78	15·25		18·10
Cape of Good Hope and St. Helena }	775·6	7·30	12·76	6·57	37·68	13·49		17·73
Mauritius	1322·9	14·46	50·60	2·41	40·92	14·90		11·26
Ceylon	780·3	13·56	42·59	12·68	46·11	16·83		21·57
China and Straits Settlements	955·7	13·97	42·45	14·56	40·28	14·69		15·54
India	1303·8	18·52	46·24	11·61	56·06	20·46		15·69
On Board Ship	431·0	8·63	..	..	..	..		..

* Calculated on strength, including detached men.

10 YEARS—1865 to 1874.

White Troops.	Aggregate Strength for 10 Years.	Admitted into Hospital.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.
Troops at Home and Abroad .. }	1,685,806	1,754,796	24,930	32,577	37,449	76,361
United Kingdom	804,720	670,754	7,594	..	22,965	32,642
Gibraltar	45,105	29,614	375	1,330	846	1,471
Malta	49,717	41,186	708	1,239	824	2,071
Dominion of Canada ..	73,568	47,253	676	1,209	999	2,262
Bermuda	16,423	11,767	247	360	234	581
West Indies	14,552	15,205	256	463	219	681
Cape of Good Hope and St. Helena }	24,817	36,776	386	989	735	1,795
Mauritius	9,332	13,246	177	412	151	500
Ceylon	9,285	10,957	177	379	171	503
China and Straits Settlements }	13,035	22,206	390	945	405	836
India	578,257	833,237	13,555	25,251	9,900	33,019
On Board Ship	36,995	22,595	389	..	..	..

*Troops at
Home and
Abroad.*

1865-74.—Annual Rate per 1,000 of Mean Strength.							Average Sick-time to each man.	Average duration of each case of sickness.
White Troops.	Admitted into Hospital.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.			
Troops at Home and Abroad	1040·9	14·50*	19·32	22·21	45·30	16·53	Days.	Days.
United Kingdom	833·5	9·06*	..	27·39	40·01	14·81		17·76
Gibraltar	656·6	8·31	29·49	18·76	32·61	11·90		18·13
Malta	828·4	14·24	24·92	16·57	41·66	15·20		18·35
Dominion of Canada..	642·3	9·19	16·43	13·58	30·75	11·22		17·47
Bermuda	716·5	15·04	21·92	14·25	35·39	12·91		18·27
West Indies	1044·9	17·59	31·82	15·05	46·80	17·08		16·35
Cape of Good Hope and St. Helena	1056·3	11·12	28·41	20·85	51·55	18·82		17·81
Mauritius	1419·4	18·97	44·15	16·18	53·58	19·56		13·76
Ceylon.. ..	1180·1	19·06	40·82	18·42	54·18	19·77		16·75
China and Straits Settlements	1703·6	29·92	72·49	31·07	66·28	24·19		14·24
India	1441·0	23·44	43·55	17·12	57·10	20·84		14·46
On Board Ship	610·8	10·52	..	..	..	..		..

* Ratios are calculated on a strength which includes all detached men since 1870.

II.—ON THE HEALTH OF THE TROOPS SERVING IN THE UNITED KINGDOM.

Section I.

Sickness and Mortality.

STATISTICAL REPORT.

The average annual strength of the non-commissioned officers and men serving in the United Kingdom during the year, calculated from the returns received, was 88,147; the admissions into hospital in this number were 73,279, being in the rate of 831·3 per 1,000 of the strength; the average number of men in hospital daily throughout the year was 2,568, being in the rate of 40·47 per 1,000 of the strength; 783 deaths occurred amongst the men present with their corps, in addition to which 87 deaths occurred amongst men detached, the average number of whom is given in the Adjutant-General's Return as 4,655, the death-rate of the non-commissioned officers and men in 1875 is therefore 9·36 per 1,000 of the strength. The admission-rate is 9·4 lower, the constantly sick-rate is 1·88 higher, and the death-rate is ·57 per 1,000 of the strength higher than the corresponding rate of the preceding year.

The classes and orders of the diseases to which the admissions and deaths were due are shown in the following Table :—

*United
Kingdom.*

B

ARMY MEDICAL DEPARTMENT

United
Kingdom.

Orders.	Average Strength in Weekly Returns, 88,147.	Admitted into Hospital.	Died.			Ratio per 1,000 of Mean Strength.			
	Average Strength, including men detached, 92,802.		With the Regiment.	Absent from the Regiment.	Total.	1875.		1869-74.	
						Admitted.	Died.	Admitted.	Died.
I. General Diseases.									
1	Febrile Group ..	4,083	48	3	51	46·3	·55	53·7	·62
2	Constitutional „ ..	12,549	241	33	274	142·4	2·95	152·4	2·82
II. Local Diseases.									
Diseases of the—									
1	Nervous System ..	1,237	56	7	63	14·0	·68	11·3	} ·55
2	Eye	1,486	..	..	..	16·8	..	15·8	
3	Ear	359	..	..	..	4·1	..	3·6	
4	Nose	50	1	..	1	·6	·01	·4	..
5	Circulatory System ..	1,544	117	10	127	17·5	1·37	13·1	1·50
6	Absorbent „ ..	1,330	2	..	2	15·1	·02	13·1	} ·01
7	Ductless Glands ..	9	..	..	..	·1	..	·1	
8	Respiratory System ..	9,053	155	11	166	102·7	1·79	82·3	1·33
9	Digestive „ ..	10,485	55	6	61	118·9	·66	101·3	·58
10	Urinary „ ..	6,245	27	1	28	70·8	·30	106·2	} ·28
11	Generative „ ..	1,090	..	..	..	12·4	..	12·5	
12	Organs of Locomotion	473	4	..	4	5·4	·04	4·9	·04
13	Cellular Tissue ..	2,127	2	..	2	24·1	·02	21·8	·02
14	Cutaneous System ..	8,996	1	..	1	102·1	·01	97·6	..
III. Conditions, &c.									
	Debility	1,172	1	1	2	13·3	·02	6·5	·01
	IV. Poisons ..	281	14	2	16	3·2	·17	2·5	·09
V. Injuries.									
2	Accidental	10,498	48	8	56	119·1	·60	99·8	·50
3	Homicidal	1	1	..	1	} ·2	·01	} ·3	·03
4	Self-inflicted	14	7	3	10		·11		·28
5	Judicial	2	1	2	3		·03		·01
VI. Surgical Operations									
	18	..	..	..	..	·2	..	·3	} ·03
	No appreciable disease	177	1	..	..	2·0	..	1·3	
	Not known .. ..	..	1	..	2	..	·02	..	
Total		73,279	783	87	870	831·3	9·36	800·8	8·70

GENERAL DISEASES.—Diseases of this class were less prevalent than in 1875, the decrease being in the rate of 17·1 per 1,000 men, but this is accompanied by an increase in the rate of mortality of ·30 per 1,000 men. The diminished prevalence of disease occurred in both groups of the class, but in each group the rate of deaths is higher.

LOCAL DISEASES.—The admission-rates of diseases of the *nervous system*, the *circulatory*, and *respiratory systems*, and of *organs of locomotion*, are higher than the corresponding rates of 1874, the increase is unimportant in all except in that of diseases of the *respiratory system*, in which it amounts to 13·2 per 1,000 men. In those orders in which there is a lower rate than in the preceding year, the decrease is small in every instance. The increased rates of mortality on those of 1874 occur in diseases of the *nervous*, *absorbent*, and *respiratory systems*, and in diseases of the *organs of locomotion*; the greatest increase being ·20 per 1,000 men in diseases of the *respiratory system*.

CONDITIONS, &c.—*Debility*.—The rate of admissions is a little higher than in 1874.

Poisons.—The rate of admissions is fractionally higher than that of the preceding year, and the rate of deaths is '09 higher.

INJURIES.—Accidental.—The rate of admissions for accidental injuries is 3·0 per 1,000 men higher than that of 1874, and the rate of mortality from them is '12 per 1,000 men higher.

Self-inflicted Injuries, were fewer than in the preceding year, and the rate of mortality is '18 per 1,000 men lower than in 1874.

Judicial.—The deaths were three, being two more than in the preceding year.

The creation of a number of Brigade Depots in 1875 involves the necessity of a new distribution of the different classes of stations, in which, for the comparison of the vital statistics of the troops, all garrisons in the United Kingdom have hitherto been grouped, and leads to a reconsideration of the principle on which the grouping was based.

Heretofore all garrisons were arranged in eight groups—namely, Seaports, Dockyards and Arsenals, Camps, Large Manufacturing Towns, London and Windsor, Dublin, and Remaining Stations; the collocation into groups was a matter of difficulty, as no exclusive characterising feature was exhibited by any one of them; thus some of the Dockyards, were also Seaports, as were also some of the stations in the group Large Manufacturing Towns, whilst the group of Remaining Stations—numerically the most important of all—contained some Seaports, Manufacturing Towns, and Inland Towns.

It is believed that no grouping of stations can be devised the principle of which is not open to objection; it is therefore thought to be preferable to take the existing Military Districts for contrast with each other as regards the health of the troops quartered in them; they afford geographical, topographical, and other differences likely to influence the results, and if these are constant, they may perhaps be useful for comparison with the evidence obtained in similar inquiries regarding the civil population.

In the following Tables the sickness and mortality in the different Military Districts are shown:—

Military Districts.	Average Strength.	Admitted into Hospital.	Died.	Average constantly Sick.	Ratio per 1,000 of Mean Strength.		
					Admitted.	Died.	Constantly Sick.
1. Northern	7,142	6,559	90	333·62	918·4	12·60	17·13
2. Eastern	3,820	4,089	54	158·71	1070·4	14·13	41·55
3. Western	5,060	3,966	34	216·30	783·8	6·72	42·75
4. Southern	8,824	6,967	86	375·11	789·6	9·74	42·51
5. Chatham	4,542	2,927	28	133·59	644·4	6·16	23·41
6. South-Eastern ..	7,012	6,276	63	299·56	895·0	8·98	42·72
7. Home	5,529	5,217	42	284·00	943·6	7·60	51·37
8. Woolwich	1,180	6,063	72	280·88	981·1	11·65	45·45
9. Aldershot	13,041	11,585	82	597·50	883·4	6·28	45·82
10. North British ..	3,412	2,277	40	114·11	667·4	11·72	33·45
11. Channel Islands ..	1,877	1,337	19	55·76	712·3	10·12	29·71
12. Ireland	21,708	16,016	173	715·37	737·8	7·97	32·95
13. Detached from their Corps .. ..	..	..	87	..	..	..	..
	88,147	73,279	870	3567·51	831·3	9·36	40·47

As regards the prevalence of disease, the highest rate, that of the Eastern District, is 426 per 1,000 men in excess of the rate of the lowest, the Chatham District; and with the highest rate of prevalence of disease, the highest death-rate is conjoined in the Eastern; it exceeds the lowest, that of the Chatham

United
Kingdom.

*United
Kingdom.*

District, by 7·97 per 1,000 men, or more than double. There is no obvious reason for such dissimilar results in the two Districts; both are on the east coast of England, and they are conterminous, and the difference of a few miles of latitude could not affect the conditions other than insignificantly. The influence of recent tropical service in raising the sick-rate of a District does not in this instance account for the unfavourable health results in the Eastern, as compared with those of the Chatham, although the fact of a regiment which arrived from India in the end of 1874 having been stationed for part of the year in the former District may have contributed to it. Little importance, however, belongs to such statistics for so short a time as one year.

As different conditions attach to residence in Camps and in Towns, the statistics of the troops at the localities included in the former group of "Camps" are shown in the subjoined Table. They have, of course, been included in the previous Table in the several Military Districts in which they are situated.

	Average Strength.	Admitted into Hospital.	Died.	Average con- stantly Sick.	Ratio per 1,000 of Mean Strength.		
					Admitted.	Died.	Constantly Sick.
Camps	20,939	18,936	154	924·79	904·3	7·35	44·17

The admissions and deaths in each class and order of diseases are shown in the following Tables :—

REPORT FOR 1875.

7

United Kingdom.

Class.	Order.	Districts	Northern.		Eastern.		Western.		Southern.		Chatham.		South Eastern.		Home.		Woolwich.		Aldershot.		North British.		Channel Islands.		Ireland.	
			Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.	1	General { Sub-division A	263	3	250	4	230	1	403	4	322	3	354	1	240	2	467	3	464	2	118	1	70	1	902	23
	2	Diasesa. { " B	1,134	29	642	23	697	12	1,114	24	411	9	908	19	1,452	18	951	17	1,993	20	402	19	247	2	2,998	49
II.	1	Nervous System	97	10	37	4	72	4	98	7	56	1	140	3	74	1	90	4	169	6	45	3	21	1	338	12
	2	Eye	131	...	107	...	82	...	124	...	50	...	161	...	55	...	84	...	285	...	85	...	6	...	360	...
	3	Ear...	32	...	21	...	14	...	34	...	14	...	48	...	9	...	37	...	48	...	11	...	...	...	85	...
	4	Brain...	21	...	3	...	9	...	8	...	4	...	1	...	...	...	3	...	10	...	...	...	...	...	11	...
	5	Respiratory System	127	13	57	5	83	7	190	8	69	7	155	8	53	10	73	8	336	20	46	5	24	2	331	24
	6	Alimentary System	176	...	69	1	61	...	109	...	31	...	84	...	103	...	59	...	267	1	15	...	36	...	350	...
	7	Diseases of the	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	8	Diasesa. { " B	793	20	578	12	417	6	1,004	20	256	7	744	10	668	7	805	19	1,377	14	289	5	1	...	2,035	31
	9	Respiratory System	893	4	526	2	578	...	907	8	437	1	910	8	617	2	881	8	1,774	5	322	2	186	2	2,002	13
	10	Digestive	575	2	447	1	361	...	681	3	265	...	409	6	509	1	482	5	957	3	172	2	160	...	1,227	4
	11	Urinary	129	...	53	...	38	...	96	...	49	...	82	...	87	...	77	...	174	...	39	...	...	...	135	...
	12	Genitive	40	...	18	...	22	...	39	...	20	...	44	...	37	...	37	...	72	...	7	...	...	...	135	...
	13	Organs of Locomotion	193	...	77	...	79	...	160	...	102	...	175	...	211	...	102	...	406	...	77	...	155	...	503	...
	14	Local Diseases—	872	...	566	...	489	...	802	...	344	...	790	...	463	...	727	...	1,478	...	278	...	...	...	2,084	...
III.		Debility. ...	84	...	79	...	58	...	137	1	67	...	195	...	53	...	80	...	206	...	32	...	20	...	161	...
IV.		Poisons ...	27	1	3	...	16	1	20	6	4	...	12	...	26	...	68	3	43	1	6	...	11	1	55	1
V.	2	Accidental	879	7	551	2	628	3	1,042	4	369	...	1,053	6	548	1	989	4	1,480	3	380	3	215	5	2,264	10
	3	Homicidal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	4	Self-inflicted	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	5	Judicial ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
VI.		Surgical Operations	3	...	...	...	...	...	...	...	...	...	...	...	7	...	1	...	...	...	...	...	...	...	...	...
		No Appreciable Disease	9	...	2	...	14	...	19	...	6	...	5	...	2	...	58	...	44	...	3	...	1	...	14	1
		Unknown ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Total	6,559	90	4,089	54	3,965	34	6,967	86	2,927	23	6,276	63	5,217	42	6,063	72	11,585	82	2,277	40	1,337	19	16,016	173

ARMY MEDICAL DEPARTMENT

Ratios per 1,000 of Strength.

Class.	Order.	Districts	Northern.	Eastern.	Western.	Southern.	Chatham.	South Eastern.	Home.	Woolwich.	Aldershot.	North British.	Channel Islands.	Ireland.
			Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.	1	General	36.3	42.1	45.5	45.7	70.6	50.5	43.4	75.6	25.6	34.6	37.2	41.6
	2	Sub-division A...	138.8	168.1	137.7	136.2	90.5	129.5	202.6	153.9	152.8	117.8	181.6	119.7
II.	3	Dis. a.s.	...	...	...	...	...	...	...	...	...	...	...	...
	4	Nervous System	13.6	1.40	14.2	7.9	11.1	12.3	12.3	14.6	13.0	46	13.2	18.6
	5	Eye	18.3	...	16.2	...	14.1	...	9.9	13.6	21.9	...	16.4	16.6
	6	Ear	4.5	...	1.8	...	3.1	...	1.6	6.0	3.7	...	8.2	3.9
	7	Nose	1.1	...	1.3	...	...	...	...	...	...	...	...	...
	8	Circulatory System	17.8	1.82	16.4	1.38	21.5	22.1	9.6	11.8	25.8	15.3	12.5	15.3
	9	Absorbent	24.6	11.9	11.9	...	6.8	12.0	18.6	9.6	20.5	...	19.2	15.3
	10	Ductless Glands	1	...	...	...	...	...	...	...	...	...	...	...
	11	Respiratory System	111.3	2.50	82.4	1.19	13.8	106.1	120.8	127.30	105.6	107	84.7	93.7
	12	Digestive	125.0	56	137.7	114.2	102.8	22	141.1	136	136.0	33	94.4	110.7
	13	Urinary	80.5	28	71.4	...	34	58.4	92.0	78.0	73.4	23	50.4	59.9
	14	Genitival	18	13.9	10.3	...	10.8	11.7	15.7	12.5	13.3	...	9.1	10.8
	15	Organs of Locomotion	7.6	4.7	4.4	...	4.4	6.3	6.7	6.0	5.5	...	2.1	6.0
	16	Cellular Tissue	27.0	...	15.6	...	24.9	38.2	...	16.5	31.1	...	22.4	23.2
	17	Cutaneous System	122.1	118.2	96.6	...	75.8	112.7	83.7	117.6	113.3	...	81.5	83.7
III.		Debility	11.8	...	11.5	...	14.8	27.8	9.6	12.9	15.8	...	10.6	7.4
IV.		Poisons	3.8	...	3.2	...	68	9	4.7	9.4	3.3	...	5.9	2.5
V.	2	Accidental	137.0	98	124.1	...	81.3	150.2	86	99.2	113.5	...	114.5	104.3
	3	Self-inflicted	...	...	...	...	...	...	...	...	...	...	...	...
	4	Quadrant	...	...	...	...	...	...	...	...	...	...	...	...
VI.		Swinded Operations	4	...	4	...	...	3	1.3	2	...	...	...	...
		No Appreciable Disease	1.2	...	2.8	...	1.3	7	4	9.2	3.4	...	5	...
		Unknown	...	...	...	...	...	...	...	...	...	...	...	...
		(General total)	918.4	12.60	783.8	6.72	789.6	8.98	943.6	11.60	883.4	6.28	712.3	737.8
				4.14	9.74	6.44	6.16	8.96	7.60	6.81	6.28	10.12	10.12	7.97

GENERAL DISEASES.—The highest rate of admissions for diseases in this class is that of the Home District, it is double the rate of the lowest, that of the North British District; the highest rate of deaths, that of the Eastern, is more than fourfold higher than the rate of the lowest, the Channel Islands District. If the two component groups of the class be taken, it is seen that *febrile diseases*, are in a higher rate of prevalence in the Woolwich, Chatham, and Eastern Districts, than in the others, the rates of least prevalence being those of the North British, Aldershot, and Northern Districts, but the combination of the lowest rates of prevalence, and lowest rates of mortality, does not hold except in the case of the Aldershot District; the highest rate of mortality is that of Ireland. Diseases of the *constitutional group*, were in the highest rate in the Home District, and in the lowest rate in the North British District; the rate of deaths from diseases of this group is highest in the Eastern, and lowest in the Channel Islands District.

The rates of admissions and of deaths in the groups of diseases of this class are shown in the following Tables :—

United
Kingdom.

ARMY MEDICAL DEPARTMENT

United
Kingdom.

Districts	Northern	Eastern	Western	Southern	Chatham.	South Eastern.	Home.	Woolwich.	Aldershot.	North British.	Channel Isles.	Ireland.
Strengths	7,142	3,850	5,060	8,824	4,542	7,012	5,529	6,180	13,041	3,412	1,877	21,708
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Erupive Fevers	18	28	9	62	14	48	15	27	13	13	6	53
Continued "	130	117	139	149	124	174	125	200	287	35	43	507
Paroxysmal "	49	51	21	156	73	86	8	140	107	30	12	92
Cholera	...	...	...	...	...	...	...	...	...	...	...	1
Influenza	44	26	39	2	97	24	74	54	25	32	4	202
Erysipelas	19	28	17	26	2	22	15	43	24	4	4	30
Other Diseases	3	...	5	8	12	...	3	3	8	4	1	17
Total of Febrile Group	263	250	230	403	322	354	240	467	464	118	70	902
	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.
Rheumatism	389	318	241	418	148	437	291	309	913	163	55	891
Syphilis	610	257	372	561	181	344	1,044	561	889	179	181	1,399
Scrofula, Phthisis, &c.	106	57	69	109	68	100	96	15	144	53	10	268
Scurvy and Purpura	4	2	...	2	2	1	...	...	1	...	1	2
Anamia	14	...	13	12	12	12	4	...	26	3	...	6
Other Diseases	11	6	2	12	...	14	17	2	20	4	...	32
Total of Constitutional Group	1134	642	697	1,114	411	908	1,452	951	1,993	402	247	2,698
	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.

Class I.—GENERAL DISEASES.

Ratios per 1,000 of Strength.

[illegible]

nited
ingdom.

Eruptive Fevers.—The rate of prevalence of fevers of this kind (3·5 per 1,000 men) slightly exceeds that of the preceding year; nearly one-third of the whole number of admissions was on account of vaccination. The highest rate of prevalence is that of the Eastern District, but the actual prevalence was greater in the Southern, and in the South-Eastern Districts, and in Ireland; in the two first named Districts, re-vaccinations mainly contributed to the comparatively large number of admissions. The lowest rate of admissions for eruptive fevers is that of the Aldershot District. There were five admissions during the year for small-pox, three in Jersey, and two in Ireland. Of 22 admissions for chicken-pox, 19 were in the Woolwich District. Admissions for measles occurred in every District except in that of the Channel Islands; the greatest prevalence of the disease was in the Southern District. Admissions for scarlet fever, (100 in all) occurred in every Military District, but the greatest number, and the greatest relative proportion, occurred in the Eastern District, where, in the last three months of the year, the disease prevailed at Colchester Camp.

Continued Fevers.—The rate of admissions for fevers of this nature, in all Districts together, is 23 per 1,000 men, being 1·6 per 1,000 lower than the corresponding rate of the preceding year. The highest rate of admissions is that of the Woolwich District; the highest rate of mortality is that of the Ireland Command.

Typhus Fever.—Two admissions for this fever are returned, both of the illnesses were fatal; one occurred in the North British District, at Paisley, and was that of a man of the 74th Regiment; the other occurred in Dublin, and was that of a man of the 3rd Battalion, Grenadier Guards; in neither instance was an examination of the body made after death.

Enteric Fever.—For all Districts together, the prevalence of this form of fever is in the proportion of 1·03, and the mortality from it in that of ·29 per 1,000 men; the first is fractionally lower, the last is one-third higher, than the corresponding rate of the preceding year. The rate of mortality to cases treated is 296·7 per 1,000. The prevalence of enteric fever in each District is here shown:—

	Northern.	Eastern.	Western.	Southern.	Chatham.	South Eastern.	Honc.	Woolwich.	Aldershot.	North British.	Channel Islands.	Ireland.
Admissions for Enteric Fever ..	} 6	7	1	12	2	2	8	5	..	2	..	46
Deaths from Enteric Fever	} 2	2	1	..	1	1	2	2	..	..	..	16

Half of the admissions, and more than half of the mortality from enteric fever occurred in Ireland, where less than a quarter of the strength was stationed. The greatly disproportionate prevalence of the disease there, was chiefly occasioned by an outbreak which occurred at Kinsale, in the 1st Battalion, 12th Foot, in September; between the 10th and 30th of the month it occasioned 21 admissions. Several of the men were taken ill at Charles Fort, to which place they had been sent from Kinsale when the outbreak occurred, but no doubt they acquired their illnesses at the latter place. Two men of the regiment also were taken ill at Bantry, where a detachment from Kinsale had been sent in consequence of the outbreak. 25 attacks, and nine deaths, were referable to this short and well-defined house epidemic. All the men attacked were young; the eldest was only 24, the majority did not exceed 20 years of age. The other admissions for enteric fever in Ireland are returned from 14 different stations. One of the men attacked was an inmate of the military prison at Limerick, where, in the beginning of 1874, enteric fever had prevailed.

The only other District in which enteric fever appeared as a localised epidemic was the Southern, in which, at Hilsa, nine men of the F Battery, 16th Brigade, Royal Artillery, all residing in one particular set of rooms in the barracks, were successively attacked. The first man taken ill was admitted into hospital on the 19th of September, and the last on the 31st of October; four men were attacked within 24 hours of each other.

In the Eastern District, at Colchester Camp, there were four admissions for enteric fever in the first months of the year; all were those of recruits for one particular regiment.

Of the admissions for enteric fever in the various Districts, it may be remarked that some (as at Colchester) were those of recruits, or of men just off furlough, &c., whose illnesses were not acquired at the military stations where the cases were treated.

Simple Continued Fever.—The admissions for fevers of this nature are in the rate of 5.1 per 1,000 men. Two deaths are returned as due to simple continued fever.

Febricula.—The prevalence of this affection was in the proportion of 16.8 per 1,000 men.

Paroxysmal Fevers.—The rate of admissions for paroxysmal fevers is 9.4 per 1,000 men, showing a reduction of nearly one-half on the rate of the preceding year. The greatest rate of prevalence of fevers of this nature (ague in all except 35 instances) is that of the Woolwich (22.6); the next is that of the Southern (17.7); the lowest is that of the Home District (1.5). The Woolwich District, which shows the highest rate, combines in itself the two conditions, of residence in it of a large number of men recently arrived from abroad, and that of containing stations—Purfleet, and Tilbury Fort, where malarial fever is endemic. The Southern District, owes its high rate to the first of the two conditions stated. One death is returned as due to remittent fever.

Influenza.—The rate of prevalence of this disease for all groups together is nearly the same as that of the preceding year. It will be seen that the rates of prevalence of this disease differ greatly in the various Districts, that of the Chatham, being much higher than that of the Southern District; the differences are probably referable to the fact, that the numbers being small, the influence of individual views, in the matter of diagnosis, is likely to colour the results.

Erysipelas.—The rate of prevalence of this disease, for all Districts together, is 1.8 per 1,000 lower than the rate of the preceding year; the greatest rate of prevalence is in the Eastern District. 37 admissions were returned in Woolwich Garrison; most of them occurred in the first and second quarters of the year. 16 admissions took place at Colchester Camp, where the prevalence of the disease had no very marked relation to season.

Rheumatism.—Compared with the preceding, there is, in the present year, a fractional reduction in the rate of prevalence of this disease, for all Districts together. The rates of prevalence in the various Districts vary greatly, that of the Eastern, being nearly three times higher than the lowest rate in the Channel Islands District, omitting this District because of its inconsiderable strength, it is more than twice as high as the rate of the Chatham District. The relation of the prevalence of rheumatism to locality in the various Military Districts may perhaps be best determined by taking for comparison the prevalence in them of the acute form only, as chronic, and muscular rheumatism, are probably in many instances due rather to the effects of age, and long service, and to former residence in malarious countries, than to local conditions capable of exciting the phenomena of rheumatism, in persons of susceptible constitution. This discrimination is made in the following Table, the data for which it is believed, refer chiefly to attacks of rheumatism accompanied by fever. The Districts are arranged in the order of the greatest proportional prevalence of acute rheumatism in them:—

United
Kingdom.

	Eastern.	Home.	Woolwich.	North-eastern.	Western.	Aldershot.	Southern.	South-Eastern.	Ireland.	Chatham.	North British.	Channel Islands.
Rate per 1,000 of the strength, of admissions for acute rheumatism ..	34·8	26·6	23·8	19·3	17·2	16·3	14·6	14·0	12·1	11·2	9·4	7·9

The results show that in the present year no constant relation existed between lowest mean temperature, or longest prevalence of cold winds, or greatest degree of moisture, and the prevalence of acute rheumatism in the Districts; if, as experience teaches, the conditions enumerated do usually influence the prevalence of rheumatism in a locality, it is clear that in the present instance they have been of less effect in the causation of the disease, than other conditions affecting the troops; but the number of observations—1,452 in all—is too small to furnish reliable evidence.

Syphilis.—In connection with the reduced number of admissions for syphilis since 1873, which there is reason to believe is consequent on the pecuniary loss now resulting to the soldier when he is under treatment in hospital for primary syphilis, it may be of interest to contrast the relative proportions of the two forms of the disease in the present, and in the preceding year. In 1874 the admissions for primary syphilis, are in the rate of 52·9, and those for secondary syphilis, of 24·5 per 1,000 of the strength. In the present year the rates are 45·9 and 28·7 per 1,000 respectively, showing an increase in the rate of the constitutional form of syphilis of 4·2 per 1,000, equal to about 370 additional admissions.

The new grouping of stations in the present year prevents a comparison of the rates of prevalence of syphilis with those of the groups in the preceding year. Only one—the Home District—is comparable, it being substantially the same as the former group, London and Windsor. In both years it shows the highest rate of prevalence, but there is, in the present, a decrease of 8·7 per 1,000 men on the rate of the preceding year. Chatham is the District which has the lowest rate of prevalence.

In continuation of the statistical information given in the reports of previous years, the admissions for primary venereal sores at certain large stations in the United Kingdom, and their rates per 1,000 of the mean strength, are shown in the following Tables:—

REPORT FOR 1875.

15

Stations under the Act.

United Kingdom.

Stations.	Strength.	Admitted for Pri- mary Venereal Sore.	Admitted for Gonorrhoea.	Ratio per 1,000 of strength admitted for Primary Vene- real Sore.	Ratio per 1,000 of strength admitted for Gonorrhoea.
Devonport and Plymouth	2,575	75	157	29	61
Portsmouth	5,555	169	384	30	69
Chatham, Sheerness, and Gravesend	4,542	75	226	17	50
Woolwich	5,605	330	392	59	70
Aldershot	12,934	600	814	46	63
Windsor	972	40	43	41	44
Shorncliffe	2,695	48	80	18	30
Colchester.. ..	2,248	72	180	32	80
Winchester	957	26	66	27	68
Dover	2,300	63	118	27	51
Canterbury	1,138	14	76	12	67
Maidstone.. ..	138	1	5	7	36
Cork	2,689	57	101	21	38
Curragh	4,258	147	183	35	43
Total of 14 Stations under the Act .. }	48,606	1,717	2,825	35	58

Stations not under the Act.

Isle of Wight	1,222	109	68	89	56
London	3,897	730	373	187	96
Warley	819	30	70	37	85
Hounslow	660	16	29	24	44
Pembroke Dock	1,218	38	43	31	35
Sheffield	779	68	71	87	91
Manchester	1,068	95	115	89	108
Preston	740	43	54	57	72
Edinburgh	1,222	33	85	27	70
Fermoy	1,200	15	39	12	32
Limerick	903	23	29	25	32
Athlone	818	8	13	10	16
Dublin	4,267	311	370	73	87
Belfast	751	33	46	44	61
Total of 14 Stations <i>not</i> under the Act .. }	19,573	1,552	1,405	79	72

United
Kingdom.

Stations.	Rate of Admissions into Hospital per 1,000 of Mean Strength for Primary Venereal Sores in—								
	1867.	1868.	1869.	1870.	1871.	1872.	1873.	* 1874.	* 1875.
Devonport and } Plymouth .. }	76	66	71	58	50	59	37	36	29
Portsmouth ..	116	86	62	51	41	40	44	48	30
Chatham and } Sheerness .. }	71	63	41	47	65	49	41	33	17
Woolwich ..	88	46	52	43	58	60	60	47	59
Aldershot ..	81	77	63	67	65	62	72	52	46
Windsor ..	58	136	93	67	78	96	84	63	41
Shorncliffe ..	42	77	60	100	30	33	21	14	18
Colchester ..	145	182	85	42	32	55	42	20	32
Winchester ..	52	104	101	61	29	57	27	38	27
Dover ..	132	111	80	30	24	47	38	37	27
Canterbury ..	119	114	45	152	38	43	20	36	12
Maidstone ..	242	122	128	68	44	57	59	66	7
Cork ..	72	61	73	68	55	62	61	26	21
Curragh ..	104	85	88	56	35	50	30	46	35
Isle of Wight ..	59	103	129	64	66	57	37	89	89
London ..	163	148	144	160	190	199	185	179	187
Warley ..	74	92	61	55	57	66	22	32	37
Hounslow ..	62	106	85	88	45	90	67	68	24
Pembroke Dock	28	35	51	54	28	27	25	21	31
Sheffield ..	163	107	146	77	126	98	71	49	87
Manchester ..	177	115	160	92	70	98	91	106	89
Preston ..	87	87	172	134	75	114	123	97	57
Edinburgh ..	63	46	60	99	69	43	44	25	27
Fermoy ..	70	47	116	59	33	56	21	10	12
Limerick ..	117	114	54	136	57	100	78	58	25
Athlone ..	85	38	42	44	47	14	14	8	10
Dublin ..	129	139	180	128	117	165	136	95	73
Belfast ..	89	56	52	43	61	78	108	64	44

* Stoppage of pay in force.

Compared with the results in the preceding year, the group of 14 stations under the Act, shows a reduction in the rate of admissions for primary venereal sores of 7 per 1,000 of the strength, and in the rate of admissions for gonorrhœa a reduction of 4 per 1,000; the contrasted group of 14 stations shows a reduction in the rate of admissions for primary venereal sores of 9 per 1,000 of the strength, and in the rate of admissions for gonorrhœa of 5 per 1,000.

In the following Table the results obtained by a different grouping of stations in the United Kingdom, in respect of the admissions for primary venereal sores, are shown:—

Groups.	Average Annual Strength of the Group.	Admissions into Hospital for Primary Venereal Sores.	Rate per 1,000 of Strength of Admissions for Primary Venereal Sores.
The 14 Stations under the Contagious Diseases Act }	48,606	1,717	35
All other Stations	39,541	2,324	59

No admissions for this disease are returned at 13 stations, having together an average annual strength of 1,246 men.

Scrofula and Phthisis.—The most noticeable differences in respect of these diseases are the high rates of prevalence in the Home, and in the North British Districts, and (leaving out of consideration the Channel Islands District), the low rates of the Woolwich, and of the Aldershot Districts; but the admissions for these diseases, as well as the recorded mortality from them, are greatly influenced by the comparative facilities for invaliding in the several Districts.

Scurvy and Purpura.—Amongst the admissions in this group of diseases are four on account of scurvy. They took place at Parkhurst, Jersey, and Dublin; no notices respecting them occur in the reports received from the hospitals at those stations.

LOCAL DISEASES.—Diseases of the Nervous System.—The highest rate of prevalence of diseases in this order, is that of the South-Eastern District, it exceeds the lowest rate, that of the Eastern District, by more than half; the excess in the first-named is due to the relatively large number of admissions for epilepsy, and for neuralgia. The highest rate of deaths is that of the Northern District, which is raised chiefly by the occurrence of an unusual number of deaths by apoplexy. Taking all Districts together, the rate of admissions for epilepsy is 4·4 per 1,000 men, showing an increase of ·17 per 1,000 on the corresponding rate of the preceding year.

Diseases of the Eye.—The rate of prevalence of diseases in this order (omitting notice of the Channel Islands District) varied from 9·9 in the Home, to 28 per 1,000 in the Eastern District, but the last-named rate represents only 107 admissions, most of which were on account of conjunctivitis, the greater number occurred at Colchester Camp.

Diseases of the Circulatory System.—The highest rate of admissions, that of the Aldershot District, exceeds the lowest rate, that of the Home District, by 15·2 per 1,000 men, but the death rate of the last, is higher than that of the first named District. Though having the lowest admission rate in the present year, the rate of the Home District is nearly double the corresponding rate of 1874 (assuming that the District represents the former group of London and Windsor). The point of most interest in connection with diseases of this order, is the evidence of arrest of the hitherto progressive rise in the rate of admissions for palpitation; in the present year the rate is 7·7 per 1,000 men, showing a decrease of ·1 per 1,000 on the corresponding rate of 1874.

United
Kingdom.

Diseases of the Respiratory System.—The highest rates of admissions and of deaths are conjoined in the Eastern District, the first being nearly threefold higher than the rate of the Chatham District. Of the 578 admissions in the Eastern District, 510 were for bronchitis and 49 for pneumonia; 12 attacks of the last-named disease were fatal.

Diseases of the Digestive System.—The Woolwich District shows the highest rate of admissions, and also the highest rate of deaths. Taking all Districts together, tonsillitis, and dyspepsia, give considerably more than the half of the whole admissions. The disease which caused most deaths was hepatitis, 20 attacks of which were fatal. The deteriorating effect of tropical service on the health of soldiers who have returned from abroad seemingly well, or at least sufficiently well to take all their duties, is apparent for years after their return; the liability of those who have suffered from liver disease, to dangerous recurrences of it, does not soon cease. In the present year, in one of the instances of death from hepatitis, terminating in abscess, the soldier died 5 years after his return from India.

Diseases of the Urinary System.—The rate of admissions for the diseases of this group (which are substantially those for gonorrhœa) varies greatly in the different Districts, that of the Eastern being very high. Compared with the rate of the preceding year in London and Windsor, there is a reduction of 11·7 per 1,000 men in the prevalence of diseases of the urinary system in the Home District, the stations included being nearly the same in both groups.

In the following Table, the admissions into hospital for gonorrhœa, at specified groups of stations in the United Kingdom, are shown :—

Groups.	Average Annual Strength of the Group.	Admissions into Hospital for Gonorrhœa.	Rate per 1,000 of the Strength, of Admissions for Gonorrhœa.
The 14 Stations under the Contagious Diseases Act .. }	48,606	2,826	58·1
At 14 Large Stations not under the Contagious Diseases Act.. }	19,573	1,405	71·8
All Stations together not under the Contagious Diseases Act (including the 14 Large Stations) }	39,541	2,487	62·9

Diseases of the Cutaneous System.—The difference between the highest rate of admissions in the Eastern District, and the lowest in the Chatham District, is 72·4 per 1,000 men. The excess of admissions causing the two-fold higher admission rate in the first-named District, was chiefly due to the greater prevalence of ulcers and of boils.

Poisons.—The great difference between the rate of admissions in the Woolwich, and in the Eastern District, and in a lesser degree in those of other Districts, seems to be explicable only on the supposition that diseases due to the effect of alcohol have not been returned in the same classes of diseases in the different Districts. Of the admissions in this class, 166 were due to delirium tremens, 109 to alcohol poisoning, and 6 to poisoning by other substances; one death was due to the inhalation of chloroform.

ACCIDENTAL INJURIES.—The highest admission rate is that of the Woolwich District, and it occurs probably in connexion with the presence in it of a large body of artillerymen, whose duties expose them to a great liability to accidents, both severe, and slight.

The following Table shows the admissions and deaths, and the number invalided in each arm of the service, with the rates per 1,000 of the strength, and the corresponding rates for the 10 years 1865-74:—

United
Kingdom

Arms of the Service.	Average Annual Strength.	Admitted into Hospital.	Died in and out of Hospital.	Invalided.	Average Number Daily Sick.	Average Ratio per 1,000 of Strength.				Average sick time to each soldier.	Average duration of each case of sickness.	1865-74.—Annual Ratio per 1,000.		
						Admitted.	Died.	Invalided.	Daily Sick.			Admitted.	Died.	Invalided.
Household Cavalry ..	1,204	770	9	7	34.56	639.5	7.47	5.81	28.70	10.48	16.38	625.5	8.19	13.20
Dragoon Guards } and Dragoons .. }	10,389	9,422	66	299	467.19	906.9	6.35	28.78	44.93	16.40	18.10	763.5	7.33	28.00
Royal Artillery ..	13,691	11,578	137	313	589.38	845.7	10.01	22.86	43.05	15.71	18.47	876.6	8.88	29.63
*Royal Engineers ..	3,664	..	38	65	..	..	10.37	17.74	..	..	..	..	6.41	14.66
Foot Guards.. ..	5,309	4,549	41	105	244.41	856.9	7.72	19.78	46.04	16.80	19.61	717.0	7.41	23.31
Infantry Regiments..	40,870	30,733	364	1,068	1434.44	752.0	8.90	26.13	35.02	12.82	17.66	722.9	7.85	25.67
Depôt Brigade, R.A..	2,179	2,422	14	115	109.18	1111.5	6.43	52.78	50.11	18.29	16.45	1062.6	9.28	32.97
*Coast Brigade, R.A..	1,130	..	20	16	..	..	17.70	14.15	..	..	..	..	13.51	8.00
Depôts and Brigade } Depôts .. }	8,808	7,980	130	474	383.82	906.0	14.76	53.81	43.58	15.91	17.56	892.7	11.14	42.18
*Army Hospital Corps	1,053	..	17	14	..	..	16.14	13.20	..	..	..	..	14.13	15.92
*Army Service ..	2,853	..	25	24	..	..	8.76	8.41	..	..	..	..	10.05	14.17

* From Returns furnished by the Officers Commanding.

United
Kingdom.

Compared with the preceding year, the rate of admissions is higher in every arm except in *Depôt Brigade Royal Artillery*, and in *Infantry Depôts*, and *Brigade Depôts*, the reductions in which counterbalance the increase in the other arms. The rate of deaths is lower than that of the preceding year, for *Household Cavalry*, *Dragoons*, and *Army Service Corps*, but higher for every other arm ; (omitting mention of corps of small strengths) the greatest increase, 4·84 per 1,000, is in *Royal Engineers* ; that in *Royal Artillery* amounts to 72 per 1,000 ; that in *Infantry* to 84 per 1,000. The invaliding rates of *Household Cavalry*, *Dragoons*, *Royal Artillery*, *Infantry*, *Depôt Brigade Royal Artillery*, and *Army Service Corps*, are lower than those of 1874 ; the rates of the remaining arms are higher.

In the following Table, to the strength of each arm, one-half of the number of men belonging to it who were placed on the pension list during the year has been added, and to the mortality of the arm, the deaths occurring before the 31st of December amongst the men pensioned from it :—

	1875.			1865-74.
	Average Strength corrected as above.	Deaths of Soldiers and Pensioners.	Ratio of Deaths per 1,000 of Strength.	Ratio of Deaths of Soldiers and Pensioners per 1,000 of Strength.
Household Cavalry	1,223	11	8·99	10·30
Cavalry of the Line	10,559	76	7·19	8·33
Royal Artillery	13,907	148	10·64	10·04
Foot Guards	5,396	51	9·45	9·39
Infantry Regiments	42,135	397	9·42	9·03

Compared with the results in 1874, a higher death rate of soldiers and pensioners combined, is seen in *Royal Artillery*, and in *Foot Guards*, a lower one in all other arms. The decrease in the case of *Infantry*, is 08 per 1,000 men only, in *Cavalry*, 1·41 per 1,000.

The classes and orders of diseases by which the admissions, deaths, and invaliding in each arm of the service were caused, are shown in the following Table :—

Depots.			Royal Engineers.		Coast Brigade, R.A.		Army Hospital Corps.		Army Service Corps.		
8,808			3,664		1,130		1,053		2,853		
Order.	Admitted.	Died.	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.	Invalided.
1	491	5	1	2	...	...	...	2	...	...	...
2	2,213	49	124	9	24	5	8	8	2	10	8
1	177	12	52	3	6	4	2	2	3	1	2
2	164	...	11	...	3	...	...	...	...	...	...
3	47	...	7	...	...	...	...	...	...	...	2
4	10	...	...	...	...	...	...	...	...	...	...
5	252	16	79	8	15	5	1	...	1	7	1
6	94	2	2	...	...	...	...	...	...	...	...
7	3	...	1	...	...	...	...	...	...	...	...
8	968	25	28	7	4	2	2	1	...	4	2
9	270	7	43	2	3	1	...	...	...	1	...
10	700	5	3	1	2	1	...	1	...	1	2
11	75	...	2	..	...	...	...	...	...	...	...
12	47	1	13	...	3	...	...	...	...	...	1
13	201	...	2	...	...	...	...	...	...	...	...
14	994	...	5	...	2	...	1	...	1	...	...
	209	...	86	...	2	...	...	...	7	...	6
	23	...	...	...	...	...	...	...	...	...	...
5	015	5	14	5	1	2	2	3	...	1	...
3	...	...	...	...	...	...	...	...	...	...	...
4	3	2	1	1	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...
	1	...	...	...	...	...	...	...	...	...	...
	23	...	...	...	...	...	...	...	...	...	...
	...	1	...	...	...	...	...	...	...	...	...
	980	130	474	38	65	20	16	17	14	25	24

ARMY MEDICAL DEPARTMENT

ited Kingdom.

Brigade, Artillery.		Depots.			Royal Engineer.		Coast Brigade, R.A.		Army Hospital Corps.		Army Service Corps.	
Order		Admitted.	Died.	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.	Invalided.
...	...	55.8	.57	.11	.55	...	...	...	1.90	...	...	...
1.37	5.50	137.7	5.56	14.08	2.46	6.55	4.42	7.08	7.59	1.90	3.51	2.81
...
.46	8.26	20.1	1.36	5.90	.82	1.63	3.54	1.77	1.90	2.85	.35	.70
...	1.84	18.6	...	1.25	...	.82	...	...	...	...	...	...
...	1.38	5.3	...	.79	...	...	...	...	...	...	...	.70
...	...	1.1	...	...	...	...	...	...	...	...	...	...
.92	16.04	28.6	1.82	8.97	2.18	4.09	4.42	.88	...	.95	2.45	.35
...	...	10.7	.23	.23	...	...	...	...	...	...	...	...
...	...	.4	...	.11	...	...	...	...	...	...	...	...
.92	1.38	109.9	2.84	3.18	1.91	1.09	1.77	1.77	.95	...	1.40	.70
.92	5.05	144.2	.79	4.88	.55	.82	.89	...	...	...	.35	...
.92	1.84	79.5	.57	.34	.27	.55	.89	...	.95	...	.35	.70
...	1.84	8.5	...	.23	...	...	...	...	...	...	...	...
...	1.84	5.3	.11	1.48	...	.82	...	...	...	...	...	.35
...	.46	22.8	...	.23	...	...	...	...	...	...	...	...
...	1.38	112.9	...	.57	...	.55	...	.88	...	.95	...	...
...
...	4.13	23.7	...	9.76	...	.55	...	...	...	6.65	...	2.10
.46	...	2.6	...	...	...	...	...	...	...	...	...	...
...
.46	1.84	115.2	.57	1.59	1.36	.27	1.77	1.77	2.85	...	.35	...
...
...	...	.4	.23	.11	.27	...	...	...	...	...	...	...
...
...	...	.1	...	...	...	...	...	...	...	...	...	...
...	...	2.6	...	...	...	...	...	...	...	...	...	...
...	...	...	.11	...	...	...	...	...	...	...	...	...
1.43	52.78	906.0	14.76	53.81	10.37	17.74	17.70	14.15	16.14	13.30	8.76	8.41

General Diseases.		Annual Ratio per 1,000 of Mean Strength.							
		Household Cavalry.	Dragon Guards and Dragoons.	Royal Artillery.	Foot Guards.	Infantry Regiments.	Depôt Brigade, Royal Artillery.	Depôts.	
<i>Febrile—</i>									
Eruptive Fevers	{ Admitted ..	6·6	2·3	1·7	1·5	2·9	13·8	10·3	
	{ Died .. ..	..	·10	..	..	·05	..	·11
Continued Fevers ..	{ Admitted ..	2·5	17·7	25·2	26·7	23·5	23·9	24·5	
	{ Died .. ..	..	·10	·58	·57	·44	..	·46
Paroxysmal Fevers ..	{ Admitted ..	..	5·8	16·6	1·5	7·1	19·7	13·0
	{ Died .. ..	..	..	..	..	..	..	..
Cholera ..	{ Admitted ..	..	..	·1	..	·1	..	..
	{ Died .. ..	..	..	..	..	..	..	..
Influenza ..	{ Admitted ..	4·2	6·2	4·6	12·4	6·3	16·5	5·2	
	{ Died .. ..	..	..	..	..	..	..	..
Erysipelas ..	{ Admitted ..	2·5	2·3	3·5	2·3	2·2	5·0	2·4	
	{ Died .. ..	..	·10	·15	..	·15	..	..
Other Febrile Diseases ..	{ Admitted ..	·8	·1	1·1	·2	·8	3·2	·3	
	{ Died .. ..	..	..	·07	..	·02	..	..
Total of Febrile Group		{ Admitted 16·6	34·4	52·8	44·6	42·9	82·1	55·7	
		{ Died	·30	·80	·57	·66	..	·57	
<i>Constitutional—</i>									
Rheumatism ..	{ Admitted ..	45·7	69·4	48·8	42·4	46·0	55·1	58·1	
	{ Died .. ..	..	..	..	·19	·02	..	..
Syphilis ..	{ Admitted ..	49·8	79·6	66·3	189·5	61·2	107·8	55·2	
	{ Died .. ..	..	..	..	·19	·07	..	·11
Scrofula, Phthisis, &c.	{ Admitted ..	8·3	10·1	10·6	15·6	11·8	11·5	21·1	
	{ Died	4·98	1·92	2·12	1·69	2·63	1·38	5·34	
Scurvy and Purpura..	{ Admitted ..	..	..	·2	..	·2	..	..
	{ Died .. ..	..	..	..	..	..	..	..
Anæmia ..	{ Admitted ..	..	1·6	1·5	1·0	1·1	3·7	1·9
	{ Died .. ..	..	..	·07	..	..	..	..
Other Constitutional Diseases	{ Admitted ..	4·2	1·7	·9	2·4	·8	..	1·4	
	{ Died .. ..	..	..	..	·38	·12	..	·11
Total of Constitutional Group		{ Admitted 108·0	162·4	128·3	250·9	124·1	178·1	137·76	
		{ Died	4·98	1·92	2·19	2·45	2·84	1·38	5·56

ailed
ingdom.

Eruptive Fevers.—Compared with the preceding year, fevers of this nature were in a higher rate of prevalence for Household Cavalry, and for Depôts ; in a lower rate for each of the other arms.

Continued Fevers.—The rate of prevalence is lower for all arms than in the preceding year, except Royal Artillery, and Infantry, the excess in the rate of each of which amounts to 2·7 per 1,000 men ; the decrease in the rate for Foot Guards is 8·5 per 1,000. With a reduced prevalence, however, a relatively greater mortality from continued fevers occurred in Foot Guards, and in Infantry.

Typhus Fever.—One admission for this disease took place in Foot Guards, and one in Infantry.

Enteric Fever.—The highest rate of prevalence, 2·07 per 1,000 men, is that of Foot Guards, in which arm this disease appeared only in the regiment of Grenadier Guards, each of the three battalions contributed cases, the greatest number being six, in the 3rd Battalion. The prevalence of enteric fever, in Royal Artillery is in the rate of 1·68, and in Infantry in that of 1·12 per 1,000 men.

Simple Continued Fever and Febricula.—The rate of admissions for the two diseases combined is lower than in the preceding year for Cavalry, and for Foot Guards, but is a little higher for Royal Artillery, and for Infantry ; the decrease in the rate for Foot Guards amounts to 8·4 per 1,000 men.

Paroxysmal Fevers.—Compared with the preceding year, the prevalence of fevers of this kind is in a higher rate for Cavalry, Royal Artillery, and for Infantry, but as the rates for Depôts are much lower, the results in the two years are nearly balanced. The comparative prevalence of paroxysmal fevers in the various arms is mainly determined, not by the nature of their special duties, but by the proportions in which they consisted of corps recently arrived from tropical countries ; in the present year more than half of the admissions for ague in Cavalry were in the 5th Lancers ; half of the admissions in Royal Artillery were in the 18th Brigade, and a similar relation is found in Infantry. Attacks of ague in young soldiers who have never served abroad, have been fewer in number than in the preceding year. The Medical Officer of the Depôt Brigade, Royal Artillery, at Sheerness, writing respecting ague, says : “ During the past year this disease has been much less frequent, “ not only in the garrison, but among the civil population. . . . The cause “ of this I am unable to explain. . . . In almost the whole of the (29) “ admissions from ague, the men had previously suffered from the same disease “ in India or elsewhere.”

Erysipelas.—For every arm the rate of admissions is lower than that of 1874. It will be observed that the rate of prevalence of this disease is highest for the Depôt Brigade Royal Artillery, a result found in that arm for five successive years, and suggesting that local conditions may account for it.

Rheumatism.—The rate of admissions for this disease is higher than in the preceding year for Household Cavalry, Cavalry, Foot Guards, and Infantry, and is lower for the remaining arms ; the highest rate of prevalence is that of Cavalry.

Syphilis.—The rate of admissions for syphilis is lower for every arm than in 1874, except for Foot Guards and for Depôt Brigade Royal Artillery ; the excess in the first-named arm amounts to 13·2, and in the last to 22·5 per 1,000 men.

Scrofula, Phthisis, &c.—The rate of prevalence of diseases in this group is higher than in the preceding year, for every arm excepting Depôt Brigade Royal Artillery, and for Infantry, the rate for the latter of which is the same in both years ; the greatest increase—5·6 per 1,000 men, being more than a third of the whole—occurs in Foot Guards ; as in the two preceding years, the lowest rate of prevalence is that for Household Cavalry.

As the rates of mortality from diseases in this group, in the various arms, are greatly affected by the comparative amount of invaliding caused by them, the rates from deaths and invaliding combined, are shown in the following Table :—

	Loss per 1,000 men by deaths and invaliding from Scrofula and Phthisis combined.
Household Cavalry	5·81
Cavalry	5·49
Royal Artillery	5·33
Foot Guards.. .. .	9·42
Infantry	7·00
Depôt Brigade, Royal Artillery	5·51
Depôts	12·94

Compared with the preceding year, the proportions of loss from phthisis, &c., sustained by the different arms, differ only fractionally for Household Cavalry, Royal Artillery, Foot Guards, and Infantry; for Cavalry there is a reduction amounting to 2·69, and for Depôt Brigade Royal Artillery, to 6·25 per 1,000 men. For Depôts, there is an increase of 1·61 per 1,000 men on the rate of 1874.

LOCAL DISEASES.—Diseases of the Nervous System.—The rate of admissions is higher than that of the preceding year for all arms except Cavalry, and Royal Artillery. Most of the admissions in this order were for epilepsy, and for neuralgia; the prevalence of the first-named disease was greatest in Infantry, the proportion being 4·26 per 1,000 men; one-eighth of the whole number of admissions in the arm, occurred in the 2nd Battalion 17th Foot.

Diseases of the Eye.—The prevalence of diseases of this order was lower for every arm except Household Cavalry, Cavalry, Infantry, than in the preceding year. The greatest number of admissions returned for conjunctivitis is 34 by the 2nd Battalion 18th Foot; the 2nd Battalion 23rd Foot, returns 23 admissions.

Diseases of the Circulatory System.—The rate of admissions for diseases of this order is higher than that of the preceding year, for every arm except Household Cavalry, and Depôt Brigade Royal Artillery; the rate of deaths is lower for every arm except Foot Guards and Depôts. Admissions for functional diseases of the heart are in the following proportions:—Dragoons, 6·64; Royal Artillery, 7·22; Foot Guards, 3·58, and Infantry, 7·76 per 1,000 men. Compared with the preceding year, the proportion for Foot Guards shows an increase of 2·85 per 1,000 men. No admissions for palpitation took place in Household Cavalry in either year.

Diseases of the Respiratory System.—The rate of admissions for diseases in this order, is materially higher than in the preceding year for every arm except Depôt Brigade Royal Artillery; a higher rate of mortality is associated with an increased rate of prevalence in Royal Artillery, Foot Guards, Infantry, and Depôts; and with diminished prevalence, a lower death-rate in Depôt Brigade Royal Artillery, but in Household Cavalry and in Cavalry a lower rate of mortality is found with a higher rate of prevalence.

Diseases of the Digestive System.—The admissions for diseases in this order are in a higher rate of prevalence than in the preceding year, for every arm except Depôt Brigade Royal Artillery and Depôts; the rate of mortality is lower than that of 1874 for Infantry, and for Depôts, but is higher for all other arms except for Foot Guards, in which there was no death from any disease of the digestive system in either year.

Diseases of the Urinary System.—The admissions for diseases in this order are in a lower rate than that of the preceding year for Household Cavalry, Royal Artillery, Foot Guards, Depôt Brigade Royal Artillery, and Depôts; the rate for Dragoons is higher, that for Infantry is the same for both years.

United
Kingdom.

INJURIES.—Accidental.—The rate of admissions for accidental injuries is higher than that of 1874 for every arm except Infantry, in which there is a fractional decrease; the proportion of deaths consequent on injuries is higher for every arm except Infantry and Depot Brigade Royal Artillery; in Household Cavalry no death was due to accident in either year.

The admissions, deaths, invaliding, and the number of daily sick, in each corps which served in the United Kingdom in 1875 are shown in the following Table:—

Regiments, &c.	Average Annual Strength.	Admitted into Hospital.	Died.			Average number daily sick.	Annual Ratio per 1,000 of strength.				Average sick time to each soldier. Days.	Average duration of each case of sickness. Days.	Stations.
			In Hospital.	Out of Hospital.	Total.		Invalided.	Daily sick.	Admitted.	Died.			
1st Life Gds.	339	230	2	..	2	3	576.4	7.52	21.30	5.01	7.78	13.49	{ Windsor, 4 months; London, 8 months. London, 12. London, 4; Windsor, 8.
2nd "	403	267	2	..	2	3	632.5	7.44	33.50	4.96	12.22	18.45	
R. Horse Gds.	402	273	3	2	5	1	679.1	2.49	31.24	12.41	11.40	16.80	
Total Household Cavalry	1,204	770	7	2	9	7	639.5	5.81	28.70	7.47	10.48	16.38	
1st Dn. Gds.	498	263	1	2	3	14	526.1	28.11	30.12	6.02	11.00	20.90	{ Ballincollig, 5; Edin- burgh, 7; dets. at Cork, Limerick, Fer- may, and Hamilton.
2nd "	508	420	2	2	4	13	826.8	25.59	45.29	7.87	16.53	20.00	{ Leeds, 7; Newbridge, 5; dets. at Preston, Bury, and Curragh.
3rd "	512	292	5	..	5	9	570.3	17.22	35.53	9.77	12.97	22.74	{ York, 5; Curragh, 4; Longford, &c., 3.
4th "	588	375	3	1	4	19	637.8	32.31	65.05	6.8	23.74	37.23	{ Newbridge, 7; Dublin, 5. Dublin, 6; Curragh, 3;
5th "	560	562	2	1	3	12	1003.6	21.43	36.32	5.36	13.26	13.21	{ Cahir, &c., 3. Shorncliffe, 7; Norwich, 5; dets. at Ipswich and Colchester.
6th "	589	672	3	1	4	26	1140.9	44.14	41.61	6.79	15.19	13.31	

7th "	495	268	47	19	66	239	167.19	906.9	6.35	28.78	44.93	16.40	18.10	<p>{ Calir, 5; Ballincollig, 7; dets. at Waterford, Clonmel, Cork, Limerick, Fermoy, &c. Edinburgh, 6; York, 6; det. at Hamilton. Brighton, 12; dets. at Woolwich and Hulsea. Colchester, 6; Aldershot, 6. Dublin, 6; Dundalk, 6; dets. at Belfast and Beltrubet. Norwich, 7; Manchester, 5; dets. at Ipswich and Liverpool. Longford, 4; Aldershot, 8; dets. at Athlone, Castlebar, Gort, Dunmore. Manchester, 5; Aldershot, 1; Shorncliffe, 6; det. at Liverpool. Aldershot, 7; Colchester, 5. Dundalk, 6; Dublin, 6; dets. at Belfast and Beltrubet. Hounslow, 7; Leeds, 5; dets. at Hampton Court, Kensington, Preston, and Bury. Aldershot, 7; Hounslow, 5; dets. at Hampton Court and Kensington. Aldershot, 12.</p>
1st Dragoons	604	401	..	3	3	4	20.90	663.9	4.97	6.62	34.60	12.63	19.02	
2nd "	607	663	1	..	1	13	30.42	1092.2	1.65	21.42	50.11	18.29	16.75	
5th Lancers	500	668	6	2	8	37	28.45	1336.0	16.00	74.0	56.90	20.77	15.45	
6th Dragoons	515	467	3	..	3	4	18.50	906.8	5.83	7.77	35.92	13.11	14.46	
7th Hussars	521	541	4	3	7	7	25.00	1038.3	13.44	13.44	47.98	17.51	16.86	
8th "	539	660	4	..	4	12	18.45	1101.8	6.68	20.03	30.80	11.24	10.20	
12th Lancers	506	619	2	2	4	12	33.05	1041.9	6.71	20.13	55.45	20.24	19.42	
14th Hussars	605	548	1	1	2	28	32.50	905.8	3.31	46.28	53.72	19.61	21.64	
17th Lancers	562	587	1	..	1	16	38.18	1035.6	1.78	28.47	67.93	24.80	23.94	
19th Hussars	506	311	3	..	3	16	19.48	614.6	5.93	31.62	38.50	14.05	22.86	
20th "	516	462	2	..	2	21	20.18	895.3	3.88	40.70	39.11	14.28	15.94	
21st "	508	614	1	..	1	27	34.37	1267.7	1.97	53.15	67.66	24.69	19.48	
Total Cavalry of the Line	10,389	9,422	47	19	66	239	167.19	906.9	6.35	28.78	44.93	16.40	18.10	
Royal Horse Artillery : B Brigade ..	814	533	7	3	10	18	31.63	728.5	12.28	22.11	38.85	14.18	19.47	
D Brigade ..	714	502	3	1	4	23	24.71	795.7	5.38	30.91	33.21	12.12	15.23	

ARMY MEDICAL DEPARTMENT

United
Kingdom.

Regiments, &c.	Average Annual Strength.	Admitted into Hospital.	Died.			Invalided.	Average number daily sick.	Annual Ratio per 1,000 of strength.				Average sick time to each soldier. Days.	Average duration of each case of sickness. Days.	Stations.
			In Hospital.	Out of Hospital.	Total.			Admitted.	Died.	Invalided.	Daily sick.			
E Brigade, Rl. Horse Artillery	768	633	4	..	4	11	31.33	824.2	5.21	14.32	40.8	14.89	18.06	{ A, Dorchester and Woolwich. B, Woolwich and Aldershot. C, Birmingham and Exeter. D, Coventry, Woolwich, and Adershot. E, Exeter.
								1133.3	14.29	9.53	42.29	15.43	13.62	Woolwich, 12 months.
Riding Esta- blishment	210	238	3	..	3	2	8.86	1070.1	9.48	6.63	89.18	32.55	30.42	{ A, Sheffield, 12. B, Preston, 12. C, Leith Fort, 12. D, Trowbridge, 12. E, Newport and Brecon, 12. F, Ipswich, Aldershot, and Birmingham, 12. G, Sheffield, 12.
								824.7	12.75	20.19	36.31	13.25	16.07	{ No. 2, No. 3, No. 4, No. 5, No. 6, Shoeburyness, 12. No. 7, " No. 8, Dover, 7½; Newhaven and East- bourne, 5½.
3rd " ..	911	776	8	4	12	19	34.17							

10th	"	..	974	480	3	2	5	24	24.53	402.8	5.13	24.64	25.18	9.11	18.05	No. 1, Devonport and Forts, 12. No. 2, " " " No. 3, " " " No. 4, " " " No. 5, " " " No. 6, Pembroke Dock, 12. No. 7, South Hook, 12. A, Dublin, 12. B, Clonmel, 12. C, Limerick, 12. D, Fernoy, 12. E, Athlone, 12. F, Kilkenny, 12. G, Ballincollig, 9; Newbridge, 3. No. 1, Sheerness, 12. No. 2, Woolwich, 12. No. 3, " " No. 4, Tilbury and Purfleet, 12. No. 5, Woolwich, 12. No. 6, " " No. 7, " "
14th	"	..	1,057	808	5	4	9	35	37.71	825.9	8.51	33.11	35.67	13.02	15.77	No. 1, Sheerness, 12. No. 2, Woolwich, 12. No. 3, " " No. 4, Tilbury and Purfleet, 12. No. 5, Woolwich, 12. No. 6, " " No. 7, " "
15th	"	..	963	849	8	7	15	13	43.87	881.6	15.58	13.50	45.55	16.63	18.86	A, Newcastle, 12. B, Hilsen, 12. C, Newcastle, 12. D, } Weedon, 10; Aldershot, 1. E, } F, Hilsen, 12. G, Newcastle, 12. A, Woolwich, 12. B, Shorncliffe, 3; Woolwich, 84. C, Shorncliffe, 4; Sheerness, 7. D, Woolwich, 12. E, " " F, Fort Rowner, 1; Hilsen, 3; Woolwich, 8. G, " "
16th	"	..	1,169	925	10	1	11	14	37.94	791.3	9.41	11.96	32.46	11.55	14.97	No. 1, Sheerness, 12. No. 2, Woolwich, 12. No. 3, " " No. 4, Tilbury and Purfleet, 12. No. 5, Woolwich, 12. No. 6, " " No. 7, " "
18th	"	..	1,043	1,365	22	5	27	27	52.77	1308.7	25.89	25.80	50.59	18.47	14.11	A, Newcastle, 12. B, Hilsen, 12. C, Newcastle, 12. D, } Weedon, 10; Aldershot, 1. E, } F, Hilsen, 12. G, Newcastle, 12. A, Woolwich, 12. B, Shorncliffe, 3; Woolwich, 84. C, Shorncliffe, 4; Sheerness, 7. D, Woolwich, 12. E, " " F, Fort Rowner, 1; Hilsen, 3; Woolwich, 8. G, " "

Regiments, &c.	Average Annual Strength.	Admitted into Hospital.	Died.			Invalided.	Average number daily sick.	Annual Ratio per 1,000 of strength.				Average sick time to each soldier. Days.	Average duration of each case of sickness. Days.	Stations.
			In Hospital.	Out of Hospital.	Total.			Admitted.	Died.	Invalided.	Daily sick.			
21st Brigade	952	828	4	1	5	22	44.28	869.7	5.25	23.11	46.51	16.98	19.53	{ No. 1, Portsmouth, 12 months. No. 2, Portsmouth, 12. No. 3, Gilkicker, 12. No. 4, Portsmouth, 12. No. 5, Fort Brockhurst, 12. No. 6, Golden Hill, 11; Portsmouth, 1. No. 7, Golden Hill, 12.
22nd "	1,013	471	8	1	9	26	17.24	462.7	8.84	25.54	16.93	6.18	13.36	{ No. 1, Dublin, 12. No. 2, Cork, 12. No. 3, Limerick, 12. No. 4, Guernsey, 12. No. 5, Alderney and Jersey, . No. 6, Jersey and Alderney, . No. 7, Weymouth, 12.
24th "	1,013	889	4	1	5	37	66.13	877.6	4.94	36.53	65.28	23.82	27.15	{ A, Aldershot, 9. (Formed on 1st April.) B, " 12. C, " 12. D, " 12. E, Chichester, 12. F, Aldershot, 12. G, " "

25th " ..	970	942	7	1	8	35	40.11	571.1	8.25	36.08	41.35	15.09	15.54	{ A, Woolwich, 5½; Shorncliffe, 8½. B, Woolwich, 4½; Colchester, 7½. C, Exeter, 4½; Devonport, 7½. D, Sheerness, 4½; Colchester, 7½. E, Northampton, 4½; Shorncliffe, 7½. F, Bristol, 12. G, Ipswich, 12.
Total Royal Artillery	13,691	11,578	104	33	137	313	589.38	845.7	10.01	22.86	43.05	15.71	18.47	
Derôt Brig., Rl. Artillery:														
1st Division..	518	519	1	..	1	6	13.71	1001.9	1.93	11.58	26.47	9.66	9.64	
2nd " ..	1,661	1,903	10	3	13	109	95.47	1145.7	7.83	63.62	57.48	20.98	18.31	Sheerness, 12. Woolwich, 12.
Total Depôt Brig., Royal Artillery	2,179	2,422	11	3	14	115	109.18	1111.5	6.43	52.78	50.11	18.29	15.45	
Rl. Engineers	1,390	800	5	2	7	36	36.61	575.5	5.04	25.9	26.34	9.61	16.7	Chatham, 12.
" "	750	487	6	1	7	22	31.09	649.3	9.33	29.83	41.45	15.13	23.30	Aldershot, 12.
" "	310	118	4	2	6	1	4.04	380.6	19.36	3.23	13.03	4.76	12.50	Dover, Shorncliffe, Curragh, and Glasgow, 12.
Total of Com- panies of Royal Engineers from which Returns have been re- ceived ..	2,450	1,405	15	5	20	59	71.74	573.5	8.16	24.08	29.28	10.69	18.63	

ARMY MEDICAL DEPARTMENT

United
Kingdom.

Regiments, &c.	Average Annual Strength.	Admitted into Hospital.	Died.			Average number daily sick.	Annual Ratio per 1,000 of strength.				Average sick time to each soldier. Days.	Average duration of each case of sickness. Days.	Station.
			In Hospital.	Out of Hospital.	Total.								
Gren. Gds., 1st Bn. ..	742	540	5	2	7	8	24.73	727.8	9.43	10.78	33.33	12.16	{ London, 3 months; Curragh, 5½ months; Dublin, 3½ months. London, 6; Windsor, 6. Dublin, 3; Aldershot, 1; London, 8.
2nd Bn. ..	740	701	5	1	6	23	35.06	917.3	8.11	31.08	47.38	17.29	
3rd Bn. ..	745	918	7	..	7	8	33.10	1232.2	9.40	10.74	44.43	16.22	
Coldm. Gds., 1st Bn. ..	776	576	..	1	1	15	36.85	742.3	1.29	19.33	47.49	17.33	
2nd Bn. ..	766	577	8	..	8	21	37.07	753.3	10.44	27.42	48.42	17.66	{ London, 12. London, 12. London, 9; Windsor, 3. Windsor, 4; London, 8; dets. at Alder- shot, Warley, and Gravesend.
Scots F. Gds., 1st Bn. ..	762	645	5	2	7	15	39.75	816.5	9.19	19.69	52.17	19.04	
2nd Bn. ..	778	592	2	3	5	15	37.85	760.9	6.43	19.28	48.65	17.76	
Total of Foot } Guards ... }	5,309	4,549	32	9	41	105	244.41	856.9	7.72	19.78	46.04	16.80	
Infantry :													
1st Foot, }	518	252	1	1	2	12	17.77	486.5	3.86	23.17	34.38	12.52	{ Edinburgh, 7; Fort George, 5; dets. at Greenlaw, Ballater, and Dundee. Dublin, 12.
1st Bn. }													
2nd Foot, }	588	427	3	..	3	12	36.44	726.2	5.10	20.41	61.97	22.62	
2nd Bn. }													

3rd Foot, 2nd Bn.	567	337	6	1	7	11	14·61	585·5	12·35	19·40	25·77	9·41	16·06	Limerick, 6; Curragh, 2; Mullingar, 4.
4th Foot, 2nd Bn.	598	267	1	..	1	6	8·69	448·2	1·67	10·03	14·53	5·30	11·83	{ Cork, 5; Curragh, 2; Athlone, 5; dets. at Castlebar, Ballina, Ballinrobe, & Westport.
5th Foot, 2nd Bn.	573	422	5	1	6	7	13·02	736·5	10·47	12·22	22·72	8·29	11·26	Jersey, 5½; Aldershot, 6½.
6th Foot, 2nd Bn.	553	385	3	2	5	2	22·44	696·2	9·04	3·62	40·58	14·81	21·27	Guernsey, 6; Aldershot, 6; det. at Alderney.
7th Foot, 1st Bn.	602	563	8	..	8	21	22·43	935·2	13·29	34·88	37·26	13·60	14·54	Dover, 6; Aldershot, 1; Colchester, 5.
8th Foot, 2nd Bn.	570	418	1	1	2	10	17·85	786·0	3·51	17·54	31·32	11·43	14·54	{ Cork, 4; Fernoy, 5; Curragh, 3; dets. at Carlisle Fort, Youghal, and Mitchelstown.
9th Foot, 1st Bn.	621	639	6	2	8	17	22·86	1061·2	12·88	27·38	36·81	13·44	12·66	Pembroke Dock, 6; Aldershot, 6.
10th Foot, 2nd Bn.	612	467	4	..	4	20	38·91	763·1	6·54	32·68	63·58	23·21	30·41	Colchester, 6; Aldershot, 6.
11th Foot, 2nd Bn.	615	532	4	2	6	14	23·22	866·7	9·76	22·76	37·76	13·78	15·90	Devonport, 6; Aldershot, 6.
12th Foot, 1st Bn.	659	339	11	1	12	5	17·21	514·4	18·21	7·59	26·11	9·53	18·53	{ Kinsale, 10; Cork, 2; dets. at Camden Fort, Bantry, Bandon, and Youghal.
13th Foot, 2nd Bn.	704	505	10	2	12	4	23·97	717·3	17·05	5·68	34·05	12·42	17·32	{ Belfast, 3; Glasgow, 9; dets. at Carrick- fergus, Ayr, and Stirling.
14th Foot, 2nd Bn.	568	522	4	1	5	6	25·66	919·0	8·80	10·56	45·18	16·49	17·34	Aldershot, 7; Devonport and Plymouth, 5.
15th Foot, 1st Bn.	533	531	2	1	3	31	26·44	934·2	5·06	52·28	44·58	16·27	17·60	Aldershot, 12.
15th Foot, 2nd Bn.*	84	49	1	..	1	1	2·38	553·3	11·90	11·90	28·33	1·03	17·73	Gosport, 1. Embarked for India.
16th Foot, 1st Bn.	590	533	2	1	3	10	24·83	903·4	5·08	16·95	42·08	15·36	17·00	Plymouth, 6; Aldershot, 6.
16th Foot, 2nd Bn.	814	545	4	..	4	32	26·14	645·7	4·74	37·91	30·97	11·3	17·51	{ Chatham, 12; dets. at Gravesend and Upnor Castle.

* From 1st January to 2nd February only.

Regiments, &c.	Average Annual Strength.	Admitted into Hospital.	Died.		Invalided.	Average number daily sick.	Annual Rate per 1,000 of strength.				Average sick time to each soldier.	Average duration of each case of sickness.	Stations.
			In Hospital.	Out of Hospital.			Admitted.	Died.	Invalided.	Daily sick.			
17th Foot, 2nd Bn.	656	425	1	..	1	18	617.9	1.52	27.41	40.23	Days, 14.08	Days, 22.06	{ Athlone, 5 months; Curragh, 7 months; dets. at Ballina, Tuam, Castlebar, Ballin- robe, Ballaghaderreen, and Newport.
18th Foot, 2nd Bn.	580	550	3	..	3	29	948.3	5.17	50.00	41.26	15.06	15.88	{ Shorncliffe, 5½; Aldershot, 1; Colchester, 5¼.
19th Foot, 1st Bn.	605	344	10	..	7	22.11	568.6	16.53	11.57	36.55	13.34	23.46	{ Chester, 7; Sheffield, 5; dets. at Liverpool, Isle of Man, Weedon, and Tynemouth.
20th Foot, 2nd Bn.	599	689	6	2	8	5	1150.2	13.36	8.35	59.43	21.71	18.88	{ Preston, 6½; Manchester, 5¼.
21st Foot, 2nd Bn.	552	384	6	2	8	40	695.7	14.49	72.46	43.97	16.05	23.07	{ Aldershot, 7; Fort Widley, 5.
22nd Foot, 1st Bn.	561	527	7	1	8	20	939.4	14.26	35.65	43.67	15.96	16.97	{ Manchester, 6½; Fleetwood, 5½; det. at Isle of Man.
23rd Foot, 1st Bn.	616	328	3	..	3	23	532.5	4.87	37.34	43.13	15.73	29.57	{ Aldershot, 9; Cork, 3.
24th Foot, 2nd Bn.	533	444	2	1	3	13	833.0	5.63	24.39	32.87	12.0	14.4	{ Aldershot, 7; Dover, 5.
25th Foot, 1st Bn.*	719	492	1	..	1	11	684.3	1.39	15.3	25.47	9.3	13.59	{ Buttevant, 9½; dets. at Cork and Spike Island. Embarked for India.
26th Foot†..	554	457	11	1	12	31	825.0	21.06	55.96	44.96	16.41	19.89	{ Arrived from India. Portsmouth, 11½; dets. at Brownstown and Fort Tipper.
27th " ..	716	470	11	..	11	20	656.4	15.36	27.93	35.47	12.95	19.73	{ Enniskillen, 6; Londonderry, 6; dets. at Boyle, Curragh, Drogheda, Sligo, and Dublin.
28th " ..	594	397	6	..	6	9	668.4	10.10	15.15	29.51	10.77	16.12	{ Dublin, 6; Jersey, 6.

REPORT FOR 1875.

35

United
Kingdom.

30th	540	374	6	1	7	6	20-26	692-6	12-96	11-11	37-52	13-69	19-77	<p>Portsmouth Hill Forts, 5½; Aldershot, 1½; Chester, 5; dets. at Liverpool and Weedon. Fernoy, 3½; Cork, 6; dets. at Tralee, Mitchelstown, Haulbowline, Carlisle Fort, and Youghal. Embarked for India. Kilkenny, 5; Cork, 4; dets. at Carrick-on-Suir, Clonmel, Duncannon Fort, Dungarvon, Waterford, and Kinsale. Embarked for India. Curragh, 5½; Dublin, 3½. Embarked for West Indies. Arrived from India. Devonport, 11 days. Arrived from India. Gosport, 11½. Aldershot, 7; Fort Rowner, 5; dets. at Gosport, Fort Fareham, and Fort Wallington. Arrived from India. Shorncliffe, 9. Birr, 5; Curragh, 1; Limerick, 6. Aldershot, 12. Arrived from India. Isle of Wight, 11½. Dublin, 7; Curragh, 1½; Birr, 3½; det. at Nenagh. Portsmouth, 12. Arrived from Bermuda. Templemore, 8; Curragh, 2½; dets. at Tralee and Carlisle Fort. Portsmouth, 3; Gosport Forts, 8; Aldershot, 1. Chatham, 11; Aldershot, 1. Devonport, 7; Dublin, 5.</p>
"	"	"	"	"	"	"	"	"	"	"	"	"	"	
33rd	626	321	2	..	2	17	9-06	512-8	3-19	27-16	14-47	5-28	10-30	
34th	478	294	..	1	1	15	10-73	615-1	2-09	31-38	22-45	8-19	13-32	
35th	512	586	2	1	3	12	not stated	1144-6	5-86	23-44	..	..	..
36th	19	21	..	..	..	..	52	1105-3	..	..	27-37	9-94	9-04
37th	531	380	4	..	4	6	23-47	715-6	7-53	11-30	44-20	16-17	22-67	
38th	624	679	3	1	4	35	32-00	1086-6	6-41	56-09	51-28	18-72	17-23	
41st	405	364	6	1	7	16	15-80	898-8	17-28	34-57	39-51	14-24	15-84	
46th	608	290	1	1	2	12	11-10	477-0	3-23	19-74	18-26	6-67	13-97	
47th	594	398	2	..	2	21	26-80	670-0	3-37	35-35	45-12	16-47	24-58	<p>Arrived from India. Isle of Wight, 11½. Dublin, 7; Curragh, 1½; Birr, 3½; det. at Nenagh. Portsmouth, 12. Arrived from Bermuda. Templemore, 8; Curragh, 2½; dets. at Tralee and Carlisle Fort. Portsmouth, 3; Gosport Forts, 8; Aldershot, 1. Chatham, 11; Aldershot, 1. Devonport, 7; Dublin, 5.</p>
49th	527	528	8	3	11	17	21-56	1001-9	20-87	32-26	40-91	14-93	14-90	
50th	559	408	1	..	1	11	23-65	729-9	1-79	19-68	42-31	15-44	21-16	
52nd	619	455	3	1	4	18	27-62	735-1	6-46	29-08	44-62	16-29	22-16	
53rd	483	322	4	..	4	2	9-04	666-7	8-28	4-14	18-72	6-83	10-25	
58th	590	312	2	..	2	17	22-71	528-8	3-39	28-81	38-49	14-04	26-57	
60th	595	362	4	1	5	19	18-00	608-4	8-4	31-95	30-25	11-04	18-15	
3rd Bn.	}	}	}	}	}	}	}	}	}	}	}	}	}	
60th	628	453	1	..	1	8	19-48	721-3	1-59	12-74	31-02	11-32	15-70	
4th	}	}	}	}	}	}	}	}	}	}	}	}	}	

* From 1st Jan. to 12th Oct. only.
 † From 21st Jan. to 31st Dec. only.
 ‡ From 1st Jan. to 28th Oct. only.
 § From 1st Jan. to 28th Sept. only.
 || From 1st Jan. to 16th Oct. only.
 ¶ From 20th to 31st Dec. only.
 ** From 21st Jan. to 31st Dec. only.
 †† From 13th Jan. to 31st Dec. only.
 ‡‡ From 10th Feb. to 31st Dec. only.

Regiments, &c.	Average Annual Strength.	Admitted into Hospital.	Died.			Average number daily sick.	Annual Rate per 1,000 of strength.				Average sick time to each soldier.	Average duration of each case of sickness.	Stations.
			In Hospital.	Out of Hospital.	Total.		Admitted.	Died.	Invalided.	Daily sick.			
61st Foot ..	581	481	3	1	4	7	14·60	827·9	6·88	12·05	25·13	Days. 9·17	{ Curragh, 4 months; Dublin, 1½ months; Guernsey, 6½ months; det. at Alderney.
64th " ..	590	567	1	1	2	23	26·60	961·0	3·39	38·98	45·10	17·12	{ Glasgow, 4; Portsmouth, 7; Aldershot, 1; dets. at Stirling and Dunbar.
75th " *..	464	196	1	..	1	4	8·06	422·4	2·16	8·62	17·37	15·01	{ Arrived from Cape. Newry, 9; dets. at Newtownards, Armagh, Drogheda, and Monaghan.
77th " ..	604	340	5	..	5	18	13·09	562·9	8·28	29·80	21·67	7·91	{ Chatham, 5½; Aldershot, 1; Woolwich, 5½; dets. at Gravesend and Sheerness.
78th " ..	547	332	2	..	2	8	15·50	606·9	3·66	14·63	28·34	17·04	{ Aldershot, 7; Dover, 5.
79th " ..	567	477	4	..	4	14	24·19	841·3	7·05	24·69	42·66	18·51	{ Aldershot, 7; Edinburgh, 5; det. at Green- law.
82nd " ..	580	380	4	2	6	25	18·47	655·2	10·35	43·10	31·84	17·74	{ Shorncliffe, 9½; Buttevant, 2½; det. at Cork Harbour Forts.
84th Foot ..	581	497	3	1	4	16	28·83	885·4	6·88	27·54	49·62	21·17	{ Arrived from the Cape. Fernoy, 9½; det. at Aldershot, 12.
86th " +..	527	279	10	..	10	9	13·97	529·4	18·98	17·08	26·51	18·28	{ Arrived from the Cape. Fernoy, 9½; det. at Mitchelstown and Spike Island.
88th " ..	612	624	6	3	9	21	25·07	1019·6	14·71	34·31	40·96	14·66	{ Colchester, 5½; Aldershot, 1; Preston, 5½.
90th " ..	534	444	3	1	4	8	20·68	881·5	7·49	14·98	38·73	17·00	{ Dover, 6½; Dublin, 3½; Curragh, 2½.
91st " ..	588	385	8	1	9	10	16·78	715·6	16·73	18·59	31·19	15·91	{ Newry, 3; Curragh, 9; dets. at Armagh and Monaghan.
93rd " ..	566	541	4	1	5	9	20·16	955·8	8·83	15·90	35·62	13·60	{ Woolwich, 6½; Shorncliffe, 5½; det. at Tower of London.
94th " ..	603	437	5	..	5	5	15·60	724·7	8·29	8·29	25·87	13·03	{ Curragh, 3; Belfast, 9; det. at Carrickfugus.

REPORT FOR 1875.

37

United
Kingdom

95th	574	351	4	4	23	13-39	611-5	6-07	40-07	23-33	8-51	13-92	{ Fleetwood, 6; Pembroke Dock, 6; det. at Newport.
96th	562	514	9	1	10	20-33	914-6	17-79	58-72	36-17	13-20	14-44	{ Warley, 3; Colchester, 9.
99th	569	260	8	..	8	9-06	456-9	14-06	7-03	15-92	5-81	12-73	{ Fort George, 7½; Curragh, 4½; dets. at Aberdeen, Dundee, and Ballater.
100th	563	450	4	1	5	12-18	799-3	8-88	33-55	21-63	7-90	9-88	{ Mullingar, 6; Curragh, 1½; Kilkenny, 4½; dets. at Sligo, Trim, Boyle, Navan, Waterford, Duncannon, Carrick-on-Suir, Clonmel, Dungarvon.
102nd	620	353	5	1	6	16-71	572-0	9-68	14-52	26-95	9-84	17-28	{ Portland, 12; det. at Marchwood.
103rd	615	492	2	..	2	24-46	804-9	3-25	29-27	39-77	14-52	18-15	{ Newport, 6; Devonport, 6; dets. at Fort Popton and at Pembroke Dock.
104th	528	437	3	3	6	22-20	827-7	11-36	73-86	42-05	15-35	18-54	{ Dover, 12.
105th	570	605	6	2	8	30-14	1061-4	14-03	28-07	52-88	19-30	18-18	{ Sheffield, 5½; Aldershot 6½; det. at Tyne-mouth.
106th	544	548	7	..	7	25-71	1007-3	12-87	22-06	47-26	17-25	17-12	{ Isle of Wight, 6; Aldershot, 6.
Rifle Brig, 1st Bn.	579	341	6	..	6	13-09	588-9	10-36	8-64	22-61	8-25	14-01	{ Winchester, 11; Aldershot, 1.
Rifle Brig, 3rd Bn.	570	542	5	1	6	21-88	950-9	10-53	89-47	38-30	13-98	14-70	{ Aldershot, 6½; Chatham, 5½.
Total Infantry Regiments	40,870	30,733	306	58	364	1068	1434-44	752-0	8-90	26-13	35-02	12-82	17-06
Depôts and Brigade Depôts	8,808	7,980	114	16	130	474	383-82	906-0	14-76	53-81	43-58	15-91	17-56

* From 1st April to 31st December only.

+ From 27th March to 31st December only.

United
Kingdom.

The health of the Household Cavalry was not materially different to that of the preceding year; it compares favourably with other arms in all the results of sickness, except in having a rather higher death rate than that of Cavalry. The death rate of the Royal Horse Guards exceeds the average; but this is probably counterbalanced by its low invaliding rate; of the deaths in the regiment, three were due to phthisis.

In Cavalry, no regiment unites all the most favourable results; as in 1874, the 1st Dragoon Guards shows the lowest admission rate, and also a favourable, though not the lowest death rate, but the evidence of exceptionally good health of the corps is not shown in the invaliding rate, which is high, and (probably in consequence of the comparatively large number of invalids) the average duration of each case of sickness exceeded the average, and was nearly double that of the 8th Hussars, the regiment which shows most favourably in this important respect. The highest admission, death, and invaliding rates are conjoined in the 5th Lancers, which regiment returned from India in December in the preceding year; although the evidence of recent tropical service is found in the occurrence of admissions for ague, dysentery, diarrhoea, and hepatitis, they were inconsiderable in number, compared with those for rheumatism, bronchitis, and the results of accidents. Of the deaths, two (being one from dysentery and one from hepatitis) were attributable to residence in India. The 21st Hussars, which returned from India in 1873, has, next to the regiment noted above, the highest admission rate in the year, and also the highest invaliding rate. The influence of recent service abroad is shown in this regiment also, in the admissions for dysentery, diarrhoea, and hepatitis, but in point of number they were unimportant, the excess of sickness in the regiment being due chiefly to venereal diseases, diseases of the heart, and of the skin, and to accidents. It will be noticed that the average duration of each case of sickness in the 4th Dragoon Guards was more than double that of the average of Cavalry; no mention is made in the report of the Medical Officer of the causes which conduced to this very long average stay of the men in hospital.

In Royal Artillery, the various results of sickness are so distributed, and one so balances another, that no comparative estimate can be formed as to the health of the different brigades.

In Foot Guards, a comparison of results with those in Infantry, shows a lower death rate, and a lower invaliding rate, but in other respects the results for this arm are unfavourable; the rate of admissions is much more considerable, and, judging by the longer average stay of the men in hospital, the cases of sickness were of greater average severity than in Infantry. Compared with each other, the different battalions of Foot Guards, show no great differences (with the exception, perhaps, that the 3rd Battalion of the Grenadier Guards had the least favourable health); but for the most part a low rate in one result of sickness is associated with, and for the purpose of comparison is balanced by, a comparatively high rate in another.

In Infantry, the highest rate of admissions is that of the 2nd Battalion, 20th Regiment, which is not very far from three-fold higher than the lowest rate, and exceeds the average rate of the arm by 398.4 per 1,000 men. The average stay of sick men in hospital also exceeded that of the average of the arm. The death rate of the regiment is high, but this feature is lessened in importance by the low invaliding rate. The sickness in the 2nd Battalion, 20th Regiment, was raised by the unusually large number of attacks of venereal disease, of bronchitis, and of dyspepsia. The lowest admission rate (taking only regiments which served in the United Kingdom for a whole year) is that of the 46th Foot, and with this is associated a low death rate. The highest death rate of any regiment which served in the United Kingdom for the whole year, is that of the 96th, which is nearly twice the average rate for the arm. Of the deaths in this corps, five were due to pneumonia, except one, they all occurred in the month of March, the other death from this disease took place in April. A death from enteric fever occurred at the same place (Warley) where the four deaths from pneumonia happened. The lowest death rate of any regiment which served for the whole year in the United Kingdom, is that of the 2nd

Battalion, 17th, but the rate is only fractionally lower than that of the 2nd Battalion of the 4th Foot, with which, in the latter battalion, a very low invaliding rate is associated. The highest invaliding rate is that of the 3rd Battalion of the Rifle Brigade; it is three-fold higher than the average rate for the arm, and exceeds the lowest rate, that of the 100th Foot, by 85·92 per 1,000 men. The 2nd Battalion, 2nd Foot, shows the highest average of duration of cases of sickness; each sick man of this battalion remained in hospital, on an average, three times longer than the sick of the 100th Foot, if the returns of the last-named corps show correctly its average number of daily sick, a reservation necessary to be made, owing to the large number of small detachments furnished by the 100th. Taking all the results of sickness as indications for guidance in estimating the degree of health of the various regiments during the year, the most favourable was that of the 2nd Battalion, 4th Foot; in it are united more of the lowest rates than in any other.

The health results in regiments (of all arms) which returned from India during the year (taking those only which served for the greater part of the year in the United Kingdom) are grouped separately in the following Table :—

Strength.	Admitted.	Died.	Invalided.	Average number Daily Sick.	Annual Rate per 1,000 of Strength.				Average Sick Time to each Soldier.	Average duration of each case of Sickness.
					Admitted.	Died.	Invalided.	Daily Sick.		
3,560	3,762	69	134	166·96	1056·7	19·38	37·64	46·90	Days. 17·12	Days. 16·20

The 75th and 86th Regiments, which returned from the Cape of Good Hope Command in the year, show good results as regards health in every particular except that the death-rate and average duration of sickness of the last named regiment are high.

Relation of Admissions into Hospital, to Age.

The relative liability of soldiers of different ages to suffer from sickness is a matter of more than speculative interest; to determine it, returns have been received which show the admissions into hospital, in relation to the ages of those attacked, amongst 81,457 of the non-commissioned officers and men serving in the United Kingdom, and they may be taken as fairly representing the results accruing in the whole of the force.

The numbers of men in different ages, arranged in quinquennial periods, and the numbers of admissions into hospital for sickness in each class, and the rates per 1,000 of the strength of each class, are shown in the following Table :—

	Under 20.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		40 and upwards.		Total.	
	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.
	12,771	12,801	27,888	27,581	14,001	9,501	10,575	5,502	12,772	6,552	3,444	2,681	81,457	64,618
Rate per 1,000 of strength	1002·3		989·0		678·6		520·2		513·0		778·4		793·3	

The results arrived at in the analysis of the amount of sickness, according to age (taking the admissions into hospital as the equivalent of this), are in harmony with the ascertained results relating to the sickness of certain classes of the civil population. Mr. Neison, who investigated the subject of the sick time of the members of some Friendly Societies, states that "the highest ratio of sickness is sometimes found associated with a favourable rate of mortality." This is precisely what is shown as regards soldiers, amongst whom the amount of sickness is in inverse proportion to that of mortality. The highest rate of sickness is that of the group of ages under 20, the same which gives the lowest rate of deaths; and the rate of sickness falls in each successive group of ages, whilst the rate of deaths regularly rises, until 40 and upwards, is reached; in this group (perhaps on account of the disturbing influence of the invaliding which takes place at this age) the association of the lowest rate of sickness, and the highest rate of deaths is broken, and a largely increased rate of sickness, and the highest rate of deaths, are found together. There is no reason to believe that the statistics of the present year are exceptional. It seems likely that the classes of young soldiers will usually furnish the greatest relative amount of sickness, as those in them are more exposed to certain causes of disease than older soldiers; recruits often acquire illnesses on their way to join, and are taken into hospital on arrival, or soon after arrival at barracks; young soldiers are more liable than older ones to attacks of the eruptive, and of some other kinds of fevers; they are more exposed to accidental injuries; and it may be, that the change to an unaccustomed manner of life, at first causes a greater proneness to sickness. The supposition that the highest rate of sickness is normal for the class of young men is supported by the statistics of the sickness amongst the students of the Royal Military Academy at Woolwich, and those of the Royal Military College at Sandhurst, whose ages nearly correspond with those of the class of young soldiers under 20.

In the following Table, a further analysis of the admission rates of soldiers of different classes of ages is made, and the results in each arm are shown separately:—

Corps.	Under 20.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		40 and upwards.		Total.	
	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.	Strength.	Admitted into Hospital.
Household Cavalry ...	84	82	367	364	322	188	222	78	121	49	87	9	1,203	770
Rate per 1,000 of strength	976.2	991.8	583.8	583.8	583.8	583.8	351.3	404.9	103.4	103.4	103.4	103.4	640.1	640.1
Cavalry ...	1,567	1,776	4,066	4,995	1,979	1,473	1,049	691	1,708	953	340	283	10,709	10,171
Rate per 1,000 of strength	1133.4	1228.4	744.3	744.3	744.3	744.3	658.7	558.0	852.4	852.4	852.4	852.4	949.9	949.9
Royal Artillery...	1,754	2,208	5,725	5,364	2,544	1,878	1,897	1,063	1,790	975	582	503	14,292	11,991
Rate per 1,000 of strength	1258.8	1258.8	936.9	936.9	738.2	738.2	560.4	544.7	864.3	864.3	864.3	864.3	839.0	839.0
Royal Engineers ...	304	178	965	829	628	327	339	112	269	76	109	81	2,614	1,403
Rate per 1,000 of strength	585.5	585.5	651.8	651.8	520.7	520.7	230.4	282.5	743.1	743.1	743.1	743.1	536.7	536.7
Foot Guards ...	726	549	1,796	2,077	1,253	1,116	745	416	566	222	234	125	5,325	4,505
Rate per 1,000 of strength	756.2	756.2	1156.5	1156.5	887.1	887.1	558.4	392.2	534.2	534.2	534.2	534.2	846.0	846.0
Infantry ...	6,402	6,306	12,482	11,740	5,762	3,602	5,101	2,595	6,503	3,503	1,470	1,224	37,730	28,790
Rate per 1,000 of strength	985.0	985.0	939.8	939.8	625.1	625.1	508.7	538.6	882.6	882.6	882.6	882.6	767.8	767.8
Depôts ...	626	451	599	709	296	251	231	167	377	166	174	144	2,303	1,888
Rate per 1,000 of strength	720.4	720.4	1183.5	1183.5	848.0	848.0	722.9	440.3	827.6	827.6	827.6	827.6	819.8	819.8
Brigade Depôts...	1,085	1,083	1,073	1,156	653	355	623	259	1,021	456	321	232	4,776	3,971
Rate per 1,000 of strength	998.2	998.2	1077.3	1077.3	543.6	543.6	415.7	476.1	722.7	722.7	722.7	722.7	747.7	747.7
Army Service Corps ...	223	168	805	547	559	311	368	121	417	122	127	80	2,499	1,849
Rate per 1,000 of strength	753.4	753.4	679.5	679.5	556.3	556.3	329.0	292.6	629.9	629.9	629.9	629.9	559.8	559.8

A general correspondence is exhibited in the results for each arm, and those for all arms combined. In both, the same gradual decrease in the admission rate is seen, until the class of ages, 40 and upwards, is reached when a rise occurs, making the rate for the class approximate to the average rate for all classes in the arm. The most important difference is in Infantry, in which the lowest admission rate is reached in the class of ages, 30 and under 35. Differences of minor importance occur in Household Cavalry, Cavalry, Royal Engineers, Foot Guards, Depôts, and Brigade Depôts; in those arms the highest admission rate is in the class of ages, 20 and under 25, not as in all arms combined, in the class of ages under 20.

VACCINATION.

The monthly returns received during the year show that in the United Kingdom 19,811 non-commissioned officers and men were vaccinated, being, in all but an immaterial number of instances, re-vaccinations of recruits on joining their corps.

The following Table shows the proportions of success and of failure after the operation when performed with fresh and with preserved lymph :—

	Fresh Lymph.		Preserved Lymph.	
	No. of Cases.	Ratio per 1,000.	No. of Cases.	Ratio per 1,000.
A perfect vaccine vesicle	3,091	410·0	3,369	274·5
A modified ditto	3,278	435·0	5,127	417·7
A failure	1,168	155·0	3,778	307·8
	7,537	1000·0	12,274	1000·0

HOME STATIONS.

SANITARY REPORT.

Aldershot.

The annual sanitary report of Deputy Surgeon-General Mackinnon, C.B., for 1875, contains no remarks specially calling for attention. There have been no important defects in a sanitary point of view requiring any special notice. Suggestions for some improvements have, however, been entered in the Estimates for the current as well as the following years.

There has been no outbreak of infectious disease among the troops; and Aldershot maintains its character for salubrity.

Eastern District.

Deputy Surgeon-General Best reports that the general health of the troops in the District during the past year was satisfactory. The barracks, hospitals, and subsidiary buildings were kept in a good sanitary condition, and afforded the necessary accommodation.

The introduction of the dry-earth system of conservancy at the camp, Colchester, previously recommended in sanitary reports, is again urged, the present method of using tubs in the latrines being considered objectionable.

“ Medical officers are pretty unanimous in their opinion that the daily ration

of animal food is insufficient. A more liberal allowance is especially required for young soldiers, who, often joining their regiments in a poor half-fed condition, are at once thrown into active exercise and exertion. With respect to the clothing, it is most necessary that cotton shirts should not be allowed to be worn during cold weather without warm underclothing. There is every reason to believe that some of the admissions for chest affections during the past year were attributable to this, more particularly in the case of young soldiers.

"As diseases arising from climatic influences—conspicuous among which may be mentioned pulmonary and throat affections and rheumatism—have contributed largely to the admissions into hospital, I take the present opportunity of making the few following remarks, premising that they are chiefly applicable to Colchester, where the greater part of the troops serving in the district are located. The climate is, no doubt, salubrious, and believed to be drier than the generality of military stations; at the same time, it is a most trying one at certain seasons, notably so towards the termination of the winter and throughout the spring months, when keen easterly winds, at times accompanied by rain, snow, or sleet, are of almost daily occurrence, and their severity is especially felt in the exposed positions of the camp and barracks. Such being the case, it becomes a matter of grave consideration whether it is prudent or desirable to order troops at once to Colchester who for years before had been serving in a tropical climate. I am quite of opinion that, on the arrival of troops from India, it would be more judicious (and greatly to their advantage if practicable) to order them to some warmer and more sheltered station, and to keep them there until the summer weather had fairly commenced, instead of locating them at Colchester or Warley, which latter may be said to be equally cold and trying at certain seasons."

The following are among the improvements that have been effected or were in progress during the year. A few remarks as to requirements are also made:—

"*Colchester*.—In May, the new Artillery Barracks were occupied by the headquarters and B and D Batteries, 25th Brigade, Royal Artillery. They are represented by handsome brick edifices, and are commodious in every respect. The requirement of a fixed bath for each of the lavatories has been represented. A shed has been erected on Middlewick Rifle-range as a shelter for troops going through a course of musketry. An infant school has been erected in the camp.

"*Warley*.—New guard-rooms and cells are in course of construction. Boilers in kitchens, cottages, and mess establishment have been renewed, and alterations made for improving the accommodation in the married quarters.

"*Norwich*.—Officers' quarters have been enlarged and improved, and an adult schoolhouse erected. Better accommodation is required for married families, a large number of whom are located in lodgings in vicinity of barracks.

"*Ipswich*.—New water-supply pipes have been laid down, and the prisoners' room better ventilated. The barrack latrine is simply a cesspit, but it is kept in a fair sanitary condition by being emptied weekly and by the free use of lime. It would be desirable to introduce the dry-earth system of conservancy.

"*Great Yarmouth*.—The drainage in the vicinity of the station has been much improved. Improvement is required as regards married accommodation.

"*Harwich*.—New ventilating grates have been provided and fixed in the casemated barrack-rooms and hospital, and some of the rooms are boarded."

South-Eastern District.

Deputy Surgeon-General Watt reports:—"The health of the troops in the South-Eastern District during the year 1875 has been satisfactory. But few cases of infectious disease have occurred among the men belonging to the various corps serving in the district, and none were of any severity. In the month of June a case of small-pox occurred in the person of a woman at Canterbury; and in the following month several children, belonging to the Royal Horse Artillery, were attacked with scarlet fever. All these cases were of a

United Kingdom.

mild nature and speedily recovered. During the month of August diphtheria appeared among the children of the 82nd and 93rd Regiments, two cases proving fatal; and in November, scarlet fever of a malignant type broke out among the children at Shorncliffe camp: six cases proved fatal. As with diphtheria, the disease was probably imported from Woolwich, where it was rife.

"The Contagious Diseases Acts are in operation at Dover, Shorncliffe, Maidstone and Canterbury. A general diminution of venereal affections, especially syphilis, has taken place, notably at Canterbury. I am of opinion that these Acts have a very beneficial effect on the health of the troops, and in this I am supported by the statements of most of the Medical Officers in the Command."

"As in former years, a number of men were sent from other stations to Shorncliffe for change of air and sea-bathing. As the weather often for weeks does not admit of bathing, and the men are under very little surveillance and allowed to frequent the canteens, I am of opinion that in most instances little benefit is derived from their stay at Shorncliffe. I have recommended that if men are sent in future they should be carefully selected, and made to attend hospital daily."

The following remarks are applicable to individual stations in the district:—

"*Dover (Western Heights).*—A hut for the treatment of soldiers suffering from infectious diseases is much needed, as also suitable accommodation for the reception of women and children attacked with these affections. The provision of these buildings has been strongly urged in successive annual barrack estimates.

"I have also recommended the erection, adjacent to hospital, of suitable quarters for the non-commissioned officers and men of the Army Hospital Corps employed therein."

"*Shorncliffe.*—At this station also it is desirable that a hospital for women and children attacked with infectious diseases should be provided. I have strongly recommended that a suitable building and necessary offices should be erected on the ground between the station hospital and the lock hospital. The latrines are faulty, but they are kept as clean as possible; and during the time I have filled the office of Principal Medical Officer have exercised no unfavourable influence on the health of the troops. On two occasions, complaints have been made relative to the water in the Royal Artillery lines at Shorncliffe. Samples were submitted to the War Office Chemist, who has expressed his opinion that they are free from impurity and fit for drinking purposes."

Chatham.

Deputy Surgeon-General Bowen reports that "the health of the troops has been very good during the past year, the number of daily sick having been considerably less than last year (1874).

"The defective drainage at Brompton Barracks is in process of improvement.

"Since the change in the water supply at Tilbury Fort, in March last, there has not occurred a single case of ague at that place, and the general appearance of the men quartered there has become much more healthy.

"The soldier's ration has been always of good quality, with the exception that I think the bread ought to be somewhat better; but long experience and observation only confirm me in the belief that the meat ration is insufficient. The amount in weight is so small that a proper proportion of necessary elements is not obtained, especially in the article of fat. This should be supplemented, perhaps, by the men themselves, by the purchase of either bacon, cheese, or butter in sufficient quantities; but at present this can hardly be expected from the soldier without some supervision; and I am fully persuaded that an extra quarter of a pound of meat, or its equivalent, would be of great advantage.

"Numerous sanitary services have been either executed during the year or are now in progress."

Woolwich.

Deputy Surgeon-General Shelton reports:—"The health of the troops in this district during the past year has been decidedly better than during 1874, as evinced by lower ratios of admissions and invaliding. Though the death rate is a trifle higher than that of 1874, this is due mainly to the number of fatal cases among the men of the 18th Brigade, Royal Artillery, on its arrival at Woolwich from India, during an exceptionally severe season.

One cause of the large number of admissions for venereal complaints appears to be the close proximity of London, and the ease with which it is reached from this garrison.

A number of the admissions from bronchitis, tonsillitis, and kindred diseases, appear to me to be caused by the habits of the young soldiers who live in the range of old huts on the common at Woolwich, as well as by the faulty condition of the huts themselves. These men are chiefly recruits—drivers for the Artillery, who, on rising in the morning, have to walk some 500 or 600 yards to their stables, and this they generally do in their shirt sleeves, or, at best, with a jacket thrown over their shoulders. After an hour's hard work in the stables, this distance has to be retraversed in the same dress; and, without doubt, this, with the coldness and liability to draughts of the huts themselves, contributes to admissions from diseases of the throat and chest.

As must always be the case among the Artillery, a large number of admissions are caused by accidents in the stables, or at drill, though, fortunately, few of these assume a serious character.

The epidemic of diphtheria, adverted to by my predecessor in last year's report, continued far into this year. This disease (which originated in the Royal Artillery cottages), caused 73 admissions altogether, of which no less than 38 proved fatal. The cottages are a series of wooden huts, about 80 years old. They were vacated on the 11th March 1875, but, unfortunately, without at once checking the spread of this disease."

Southern District.

Surgeon-General Mouat, V.C., C.B., reports that "the general health of the troops serving in the Southern District during the year 1875 has been very good. While the admissions and average daily sick have been higher than last year, the mortality has been less. No local or other causes of disease have been noted as injuriously affecting the health of the troops at the various stations of the district, with the exception of a few cases of typhoid fever at Hilsea, attributable, it is believed, to the use of sewage as manure. The matter was brought to the notice of the military and local authorities, and the nuisance, although mitigated, has not been altogether abandoned. On all Government farms the practice has ceased.

The following sanitary defects, of minor importance, exist in the district. They have been brought to the notice of the local military authorities:—

New Barracks, Gosport.—The prisoners' room, adjoining the Guard, is entirely deficient of means of warmth, and as it requires to be washed almost daily, it is seldom quite dry. This might be remedied without much expense or difficulty, and is absolutely necessary.

Gosport Forts.—During the summer the ditches around the Forts were somewhat offensive when the water was low, but on enquiry and examination, no disease could fairly be attributed thereto. A recommendation was made for the periodical removal of anything offensive. At present no nuisance is experienced, as the water is now considerably above its ordinary level, owing to the late rain-fall, but as the warm weather approaches, the smell may again return, unless some steps are taken to prevent it. No disease has occurred among the troops in the neighbourhood attributable to this cause.

Fort Rowner.—The Medical Officer of the 38th Regiment, Fort Rowner, considers the Kersey frocks worn by the men insufficiently warm during the winter months.

40th Brigade Depôt.—The Medical Officer, 40th Brigade Depôt, considers the fuel insufficient to keep the casemate and cavalier quarters at Fort Elson dry. Married quarters are being built for the families now in Fort Elson.

United Kingdom.

United
Kingdom.

Mull-Dam Barracks, Portsmouth.—The guard-room, cells, canteen-tap, workshops and reading-room would all be improved by a little cross ventilation by means of a perforated brick or two at the back walls, as the rooms are very small and close at times. The bath-room is deficient in pegs to hang men's clothes, and foot tubs are urgently required.

Clarence Barracks, Portsmouth.—The guard-room is far too small for the strength of the guard (9); prisoners' room dark, ill-ventilated, and also too small, constructed for 5 persons only, and is often necessarily overcrowded. The lavatories and baths are situated in a dark, damp, ill-ventilated room on the basement, and the means of ablution are barely adequate.

Cambridge Barracks, Portsmouth.—In consequence of the large number of men attached to the 52nd Regiment, the utensils, *i. e.*, coppers, are not sufficient, and the cook-house is so constructed that there is no escape for the steam except by the doors and windows; the consequence is that the cook-house is always full of steam, and the floors consequently wet. The prisoners' room, which is situated on the basement under the guard room, is not warmed in any way, and in very cold weather is scarcely fit for occupation without the precaution of the men's bedding and great coats being allowed them.

Gun Wharf Barracks, Portsmouth.—The tap-room and canteen are too small for the number of men using it. The prisoners' room has been enlarged, well lighted and ventilated, but the means of warmth is inadequate.

Winchester.—The Medical Officer, 1st Battalion, Rifle Brigade, states that the ceilings and windows of the Winchester Barracks are low, giving to some of the rooms a gloomy appearance.

Station Hospital.—The walls of the cook-house are in a wet condition in consequence of there being no escape for the steam.

Parkhurst, Isle of Wight.—The men of the 107th Regiment, recently returned from India, complain of the excessive cold, and the difficulty of warming the rooms with the government allowance of fuel. I found all the grates of the old pattern, and from their size and construction I consider that no amount of care and attention can make the fuel suffice, or diffuse a sufficient amount of warmth. I would suggest for consideration the necessity of altering the present faulty fireplaces or increasing the allowance of fuel. The ventilation of buildings is in general sufficient, and the facilities for ablution ample, the means of cooking good, diet unchanged, and while the cubic space has not been increased there has been no overcrowding. The water supply has been good in quality and abundant in quantity.

The total number of men exercised in the gymnasia during the year in the Southern District was as follows:—

Stations.			Officers.	N.-C. Officers and Men.
Portsmouth	..	..	3	465
Gosport	..	..	..	389
Winchester	..	..	2	672
Parkhurst	..	..	1	156
Portland	..	..	2	289
Total	..	..	8	1,971

The majority have undergone the exercises with advantage to their health and appearance. The chest measurement was on an average increased by 1·5 inches, the arms and legs were considerably developed, and the increase in weight averaged 5lb. per man. The Contagious Diseases Acts are in operation at Portsmouth, Gosport, Winchester and Southampton, but not in the Isle of Wight. The Medical Officer at Parkhurst states, that venereal diseases have caused a number of admissions attributable, in his opinion, to the fact that Newport is without the operation of the Contagious Diseases Acts.

The sickness and mortality of the Troops in the Southern District, as well as the amount of invaliding, are considerably increased by the circumstance

that Portsmouth is generally garrisoned by regiments recently arrived from India and other foreign countries; and with old soldiers, often much debilitated by long service abroad; but on the whole, a review of the past year is satisfactory so far as the health of the Troops is concerned, and compares favourably with the statistics of former years."

United Kingdom.

Netley.

Surgeon-Major Madden reports that:—"The results of the Registrar's Annual Returns for 1875, on foreign-station invalids, and on effectives attached to or passing through Netley, are shown in the following Table:—

I. INVALIDS.

	Remained, 1st Jan., 1875.	Since Joined.	Died.	Discharged.			
				As In- valids.	To Corps or Depôts.	To Lunatic Hospital.	Remaining 31st Dec., 1875.
From Foreign Stations ..	67	2,270	51	957	1,186	16	127
From Home Stations ..	..	..	..	..	..	..	..
Men sent for change ..	6	48	3	3	44	..	4

II. EFFECTIVE TROOPS.

	Average Annual Strength.	Remained 1st Jan., 1875.	Admitted.	Died.	Discharged.	Invalided.	Remaining, 1875. 31st Dec.,
Army Hospital Corps ..	168	6	82	3	73	9	3
Army Service Corps ..	26	..	13	..	12	..	1
Royal Engineers and Garrison Police ..	18	1	2	..	3	..	..
Time Expired Depôt ..	130	27	169	3	175	5	13
Staff ..	4	..	1	1	..	..	..

It is calculated that about 1,250 invalids, chiefly from India, went direct to their Depôts on disembarkation at Portsmouth, in addition to the number (2,270) who were admitted to Netley.

The proportion returned to duty and discharged as unfit is an average one. The death-rate is rather above the average, phthisis and the circulatory and respiratory diseases being the chief causes of mortality among invalids.

As heretofore, the great mass of the invalids arrived in April, 1875 having been received from India in that month. This necessitated the temporary use of marquees for about a fortnight for the convalescents, and somewhat strained the resources of the establishment, the actual accommodation in the hospital not exceeding 958 beds.

The ships "Crocodyle" and "Jumna" disembarked their invalids within two days of each other, which gave 809 admissions almost in a body, and raised the total sick in hospital in the end of April to 1,045. The inconvenience of this sudden pressure has already been represented.

The Army Hospital Corps had its head-quarters shifted to Aldershot in September, and the instructor, Surgeon Moore, accompanied it.

The Discharge Depôt has continued on the same footing as in previous years. Their average monthly strength has varied from 527 in January to 600 in December.

*Army Hospital Corps.
Discharge depôt.*

- United Kingdom.** 26 in October. They occupy tents in summer, and are lodged in the south wing of the hospital during the winter months.
- Hospital.** The sanitary condition of the hospital has been good during the year.
- Water supply.** The water-supply is from Artesian wells and a reservoir. Nothing special was required. Attention is paid to filtration of the water used in the cook-house.
- Provisions.** The provisions have been regularly inspected, and the supply of meat, vegetables, and groceries, &c., has been a fair average in respect of quality. The tea is tested by analysis before issue. For families requiring provisions and groceries there is an excellent canteen, which is very carefully looked after.
- Cooking.** The cooking arrangements are by boilers, Beuham's range, and gas jets, and are sufficient for the requirements. Hot-water trays are in use to convey the cooked diets to the wards. Some new boilers have been recently introduced into the cook-house.
- Drainage.** The drainage of the hospital is not yet completed in respect of the air-disconnection to be effected between the main sewer and the various water-closets and lavatories, but the works are being proceeded with.
- Female Hospital.** The Female Hospital has been in use during the year. There are two small wards with five beds in each. It appears to be a useful institution, and the accommodation is satisfactory, so far as it goes.
- There is no infectious ward. One or more would appear to be required, as there have been numerous cases of measles, and stray cases of scarlet fever among the families, and the only means of isolating such individuals is by placing them in marquees.
- Cells.** An addition has been made to the number of cells, four new ones having been added. These are properly constructed and ventilated. An exercising court in front of the cells has likewise been made.
- The following are the chief sanitary improvements during 1875.
1. Adding four new cells for prisoners.
 2. Proceeding with air-disconnection between the ablution and bath rooms; with sinks from main drain in the north wing (completed), and in south wing (commenced).
 3. Replacing some of the old boilers in the cook-house by new ones.
- The following sanitary recommendations have been made by Surgeon-General Fraser, C.B. :—
1. To provide a separate hospital for officers.
 2. To provide a separate hospital for infectious diseases (the suggestion is made to turn the present "imperfect female hospital" into infectious wards, and provide a suitable female hospital).
 3. To complete the air-disconnection of ablution and bath rooms with sinks from main drain in the south wing (approved and in hand).
 4. To complete the surface drainage in the south wing yard (approved and in hand).
 5. To complete the surface drainage in rear of the hospital wall in its whole extent (approved and in hand).
 6. To provide better filtration for the whole of the water supply.
 7. To erect a Turkish bath.
 8. To provide additional cottages for the families of invalids.
 9. To provide a new school-house for children, in lieu of the present arrangements."

Western District.

The Principal Medical Officer reports :—

"The medical officers in charge of stations generally make mention of the damp and relaxing character of the climate of the Western District. They severally state that it has a prejudicial effect upon those predisposed to bronchial and rheumatic affections, or whose livers have been deranged by service in hot climates, but upon others it seems to have exerted a salutary influence.

"According to my observation and experience, the climate, especially that of

the southern part of Devon, has been very humid and enervating. At Plymouth and Devonport scarcely a day passes without rain, although the amount which falls in the twenty-four hours is usually small. The climate of these towns, however, appears to suit chest affections, and it is only the dyspeptic, gouty, or rheumatic who are injuriously affected by it.

"The sanitary condition of the several barracks, hospitals, outbuildings, and enclosures throughout the district has been, on the whole, very satisfactory. Several of the barracks, such as Millbay, Granby, Mount Wise, and Trowbridge, are old and faulty in construction.

"*Devonport and Plymouth.*—The medical officer at Mount Wise Barracks complains of the defective drainage of Devonport, the main drain of which does not extend sufficiently far out into the creek to enable its contents to be carried away by every tide.

"A somewhat similar state of affairs exists in the creek running adjacent to and between the station hospital at Stoke and the naval hospital at Stonehouse, but I cannot discover that any medical officer has ever experienced any ill effects from it. Another source of complaint in connection with Stoke hospital is the graveyard in its immediate vicinity, and to the north. This graveyard, which has been closed for interment since 1874, was lately the subject of a vestry meeting as to a proposal to re-open it for burials; however, by the strenuous opposition of the vicar, backed by the Principal Medical Officer, the idea has been abandoned. The only other nuisance is the offensive manure works on the Cattdowns, not far from the Citadel. Numerous complaints have been made to the civil authorities, with the view of its removal by the inhabitants of the neighbourhood, but without avail.

"Tregantle Fort has been vacated during the year, in consequence of the damp state of its walls, and it is now undergoing repair.

"The latrines at Raglan Barracks require better ventilation, to prevent the offensive smells experienced in summer, and a ridge ventilator has been recommended. That also at Millbay requires an opening to be made in the wall opposite the entrance for the same purpose. The flow of water through the drip-pipes in urinals at Raglan and Granby requires to be continuous. A tank for the storage of water has been recommended for each urinal, not only to carry out the above, but to ensure the prevention of contamination of the water in the mains.

"The accommodation for married soldiers is inadequate for the garrison—in fact, at Devonport it is worse than last year, in consequence of the addition of the 35th Brigade Depot from Tregantle. Several families are still placed in one room.

"The lighting and warming has been satisfactory, and the regulated number of inmates in each room has not been exceeded.

"The water supply has been good and abundant, its source being the Dartmoor hills, from which it is collected in reservoirs by the Water-works Company and distributed to the different barracks.

"The hospital buildings are in good order, and the accommodation is ample. The colonnade is now in course of reconstruction, the necessary funds for the purpose having been granted. The new service of hot and cold water has been since completed, and it is found a great addition to the comfort and welfare of the sick. The reappropriation of the wards to suit the station hospital system has been completed. The warming, lighting, and ventilation of the hospital have been quite satisfactory, and there has been no overcrowding of the patients.

"*Exeter.*—The barrack buildings and hospital are in good condition. Some of the men's rooms in the old barracks at Topsham still require re-flooring, and the stables beneath to be ceiled with lath and plaster, to prevent the exhalations passing from them into men's rooms above. This service is, however, gradually being effected. The wall at the back of the hospital at Topsham, which impedes the free circulation of air, has not yet been removed.

"There is not sufficient accommodation for the married families at the higher barracks, two families being placed together in a room.

"Ventilating shafts have been placed in the barrack rooms at Topsham. The higher barracks have been converted from a cavalry into an infantry barracks, the stables being now used as rooms for the men of the 34th Brigade Depot,

United
Kingdom.

new urinals, latrines, and lavatories having been constructed, and a thorough system of ventilation adopted.

"Bristol."—The barracks, buildings, out-offices, and hospital are in a satisfactory state. A latrine is required outside the hospital building. A pack store is also much wanted, and a building for the treatment of infectious diseases.

"Trowbridge."—The condition of the barracks and hospital at this station cannot be considered satisfactory. The buildings are old, and faulty in construction, and not suitable for a battery of artillery. There are no married quarters, the married families being still accommodated in a long attic. This room is cold in winter, and hot in summer, and is lighted by skylights. There is no system of ventilation in the barrack or guard rooms.

"Pembroke Dock and Defensible Barracks."—The sanitary state of the town is described as bad. There is no water supply to a population of over 11,000, beyond rain-water collected in tanks placed underground, in immediate vicinity of cesspits. Typhoid fever, however, does not appear to be prevalent. There is the usual complaint of offensive emanations from the mud in the immediate vicinity of the hut encampment, but it does not appear to have had any injurious effect upon the health of the men.

"The huts and outbuildings, hospital, &c., are all in a good sanitary state. There has been no overcrowding, either in camp or hospital, in consequence of the diminished strength of the garrison.

"The ashpits are still those of the old four-walled pattern.

"The latrines at west end and that at the hospital are still much complained of. There is no reason that I can see why these latrines should not be fitted with the McFarlane patent apparatus, as has been done with that at the east end. The latrines and urinals at Defensible Barracks are still reported as very offensive at times.

"A female hospital is much needed, not only for the garrison itself, but for the cases of sickness occurring in the various outlying forts in the neighbourhood.

"The improvements during the year have been—two new brick huts to replace old wooden ones, a rain-water tank in hospital, and better ventilators in men's rooms in Defensible Barracks. A new infectious ward is to be erected during the ensuing year.

"Hubberstone."—The fort is in a good sanitary state, with exception of the roof being bad in places, and giving rise to leakage, especially over the hospital wards. The latrines and urinals are on the same system, and in a similar situation to those at the Defensible Barracks, Pembroke Dock, but they are not reported as offensive. Water is not laid on in the hospital. The oven in the men's kitchen is old, and frequently requires repair, and takes much coal to heat it. To prevent the dampness of the barrack rooms, silicated paint has been tried as an experiment on a small portion of the outside wall (that most exposed to the weather), and has answered admirably.

"Newport, Monmouth."—The barracks and hospital are in a good sanitary condition. Ventilation in the old block of buildings used by the Artillery is much needed. Water requires to be laid on (with drip-pipe) in the urinals, and a building for infectious diseases is required; also a more free communication between the surface and subsoil drains, to prevent the lodgment of water at the Artillery barracks. A more abundant supply of water is needed for the Artillery, their well being polluted by drainage from the stables, and their drinking water having in consequence to be brought from a distance in carts. The barracks have been much improved during the year. A new block of buildings has been constructed to accommodate a battery of artillery, instead of only two-thirds of a battery as before. The ventilation of the infantry barracks has been materially improved by the introduction of extraction-shafts. A handsome and commodious building is in course of erection, to contain recreation-rooms and additional officers' quarters.

"A site has been approved of in an adjoining field, on which to build two blocks of married quarters, to accommodate 48 families. This will obviate the necessity of placing married families in small and unhealthy lodgings, as is the case at present. It is also proposed to build a female hospital on the same site.

Brecon.—The buildings comprising the barracks and hospital are in a *Western District* satisfactory state, with the exception of there being no proper system of ventilation in any of the rooms.

"The latrines are on Moule's system, and have been kept in a better condition, the men being better acquainted with their use. Water has been laid on in the barracks from the town water-works.

Penally and Tenby.—With exception of the officers' quarters, the several buildings comprising the barracks and hospital at Penally are in a fairly good sanitary condition.

Falmouth.—The barrack buildings and hospital are old and faulty in construction. The rooms have no system of ventilation, and, with the exception of the hospital wards, are small, low, and close in summer.

"The surface drains require a freer communication with the subsoil drains, to prevent the flooding which now takes place during heavy rains. The latrines are, during the drought of summer, objectionable, not being sufficiently flushed, water having to be brought for this purpose from the sea."

Northern District.

The troops in this Command are reported by Surgeon-Major Tarrant to have been healthy: the ratio of admissions per 1,000 of mean strength has decreased, although that of deaths has somewhat increased, during the year under report as compared with the preceding one (1874).

The sanitary improvements that have been effected during the year at the numerous stations in this Command have been almost entirely of a minor character.

North British District.

The sanitary report of Deputy Surgeon-General Elliot, C.B., contains the following remarks:—

Barracks and Hospitals.—These are much in the same state as previously reported on, but I trust before another 12 months that the new barracks at Greenlaw, and the Maryhill Barracks, near Glasgow, will be occupied.

Edinburgh Castle.—The room formerly occupied by the steward has been, at my suggestion, converted into an infection ward.

Piershill.—There is no change since last report. The infection ward has been of great use in isolating cases. There is a want of store accommodation for clean and dirty linen.

Leith Fort.—A new canteen, and women's wash-house, are to be built early next year.

Gallowgate Barracks and Hospital.—Now that there is a force of Royal Engineers at Maryhill, the accommodation at the hospital is at times insufficient, and one or more barrack rooms have to be used as hospital wards.

Ayr.—Double windows have been fitted to the most exposed side of the new barrack.

Hamilton and Perth.—There is to be increased accommodation for both healthy and sick soldiers.

Stirling.—New married quarters have been sanctioned. At times the married families have been much crowded—three or four in a room.

Dunbar.—Early in the year a detachment of the 64th was quartered here, but they left in April. The 62nd Brigade Depot went there 31st July. They have had fair accommodation, but at times the men are somewhat crowded, and they then take over rooms in the New Inn Barracks, in rear of the officers' mess and quarters. In the same court is the hospital, for five patients only; and the former guard room is used as a dead-house. These are mere temporary accommodations until the Brigade Depot moves to Greenlaw new barracks, where they are to be quartered.

Dundee, Aberdeen, and Fort George.—Are much in the same state as when last reported.

As a rule, there has not been any overcrowding in the barracks but the

*United
Kingdom.*

hospital accommodation at Glasgow and Hamilton has not at times been sufficient, resulting in the barrack rooms being used as sick wards; but more ample accommodation will be afforded when the new plans are carried out at these stations."

Dublin District.

Deputy Surgeon-General Foss reports:—"The only prominent requirement carried out in barracks has been the introduction of the Vartry water into the Island Bridge Barracks. It is intended that Portobello should be supplied from the same source. The Station Hospital, Phoenix Park, answers the purpose well; but it is not spacious enough for the number of sick in the garrison and for the invalids of the district. The supplemental building at Arbour Hill is quite unsuited for the purpose, so much so that it is impossible to arrange and conduct matters satisfactorily in it; and I would wish to draw attention to this subject, as its construction imposes an excessive amount of attention and labour from the Medical Officers and all the subordinates."

Belfast District.

Deputy Surgeon-General Webb reports:—"The impurity of the water at some of the stations in this district is becoming a very serious subject for sanitary legislation. This is particularly the case at Armagh, Belturbet, and recently at Belfast. A return has already been provided, showing the description and state of the water supply at the various stations, and every means are being adopted to remedy these defects. The use of impure well-water has been interdicted for drinking, and in some instances the pump-handles have been removed, and the wells boarded over. A great deal has been effected in the way of sanitary improvements, of which the following is a *précis* :—

During the year 1875-76 many alterations, in the form of sanitary improvements, have taken place throughout the Belfast District to sinks, wash-houses, and ablution-rooms, by disconnecting outlet pipes with sewers, also water-closets and their soil pipes, and their supply pipes have been disconnected from drinking-taps. This kind of service will be continued on a larger scale this year. Two new wings have been built to Infantry Barracks, Belfast, and a block for Cavalry Barracks, also stabling for officers and men; all very freely ventilated on modern principles. Foundations of new married quarters, Belfast, have been commenced; the building, when completed, will accommodate 30 families; also an infant school and quarters for schoolmistress. The whole of the barrack at Dundalk, with stables, have been painted and white-washed. A large tank at Londonderry has been repaired and cleaned, and several smaller tanks also. Two new wells have been sunk at Armagh and Cavan. At Monaghan the drainage has been generally improved. Besides the above, many minor matters of a similar nature have been attended to."

Cork District.

Deputy Surgeon-General Crocker reports that the general health of the troops during the year has been good, though not quite so favourable as in the preceding one. At some of the stations diseases of a preventable character, and dependent on local insanitary causes, have occurred.

In the month of September enteric fever, in an epidemic form, prevailed at Kinsale, in the 1st Battalion 12th Regiment, and caused 8 deaths out of 21 attacked.

The following information has been extracted from the medical history of

this outbreak, as detailed by Surgeon-Major Wallace, the medical officer in charge, and other documents.

"Kinsale barracks are situated on an eminence to the north-east of the town of Kinsale, with a south aspect, at an elevation of 100 feet above the level of the sea, and within 300 yards of the terminus of a branch of the Cork and Bandon Railway. There are three or four houses, the back yards of some of which are described as filthy, just outside the north-east angle of the barrack enclosure, and objectionably close to the barracks. The position of the barracks is healthy; the buildings at present in occupation are distributed over a piece of ground 176 by 117 yards. They consist of three separate blocks, forming three sides of a square, and of five wooden huts built along the south or open side. The buildings are all three-storied (*i.e.*, reckoning the ground-floor as one), and built of stone and lime. The ground-floor is about 17 inches from the foundation, the intervening space being ventilated at frequent intervals. The east and west blocks are each 256 feet in length, 33 feet from the ground to the commencement of the roof, and 22 feet in width (including the walls). The block on the north side is somewhat longer and higher. They are separated from the barrack wall by an interval of 30 feet in some places and 40 in others, in which are the canteen, ablution-rooms, wash-houses, cook-houses, latrines, and urinals. The huts run along the south side, east and west. The walls of the huts are of wood, and the roof is of wood covered with felt. There is a door at each end, two windows on either side, opposite to each other, opening by means of hinges in the centre. There are two ventilators on the ridge of the roof, and one above each door. The huts are also raised some distance from the ground, the intervening space being ventilated. The huts measure 38 feet in length, 20 feet 3 inches in width, and 7 feet 6 inches in height. The barrack rooms are nearly all of the same size, measuring, as a rule, from 19 feet 5 inches to 20 feet 2 inches in length, from 18 feet 1 inch to 18 feet 5 inches in width, and from 9 feet 10 inches to 10 feet 2 inches in height. The rooms, as regards their age, general construction, and ventilation, are described as open to many objections.

In consequence of an outbreak of enteric fever in these barracks in 1873, certain improvements were recommended, some of which had been carried out, while others were still in progress at the date of the occurrences under report. The whole of the latrine system had been undergoing reconstruction, earth-closets having been substituted for the old cesspits; the rain-water tanks had been cleaned out, new filtering material having been supplied to the tanks about ten months before; the ventilation of the soldiers' rooms was being gradually improved.

At Charles Fort the old system of cesspits, which are described as having been in a foul state, still existed, the substitution of earth-closets having been recommended, but not yet carried out. The drains at this fort are of solid masonry, old and defective, and much damaged by rats.

Twenty-one men were admitted into the station hospital, Kinsale, with enteric fever during the month of September, the first admission being on the 10th, the last on the 30th, of that month. Of this number 20 belonged to the 1st Battalion 12th Regiment, and one, a soldier belonging to the 2nd Battalion, was from his dépôt at Charles Fort, about a mile and a half from Kinsale.

From the Table appended it will be seen that the greatest number of admissions was on the 13th September. From the 1st to the 18th of that month the weather was very dry and warm, the heat being greater than at any other period of the year. From the 18th until the middle of the first week in October the rain fell in great quantities.

The water supply for Kinsale Barracks may, for convenience of description, be divided into—1st, water for cooking and drinking; 2nd, water for the general cleansing of the barracks, ablution, &c. The former (except for a short time in summer, varying, however, according to the rainfall) is rain-water, collected in tanks in the south-east and south-west corners of the barracks. When this becomes exhausted the troops have to be supplied with water carted daily into barracks. This is generally obtained from the same source as that from which the town derives its supply—*viz.*, a spring near the work-

*United
Kingdom.*

house, about half a mile from barracks. This water is of good quality, but during a long continuance of dry weather the spring alluded to would not yield water in sufficient quantity to supply both the town and the troops.

The mode in which the rain-water is collected is very defective, and, notwithstanding the greatest care, will always be likely to lead to the entrance of impurities. The reception tanks and filtering chambers are below ground, and not in by any means the best-selected portions of the barracks. If the filtering chambers and tanks hitherto in use are to be for the future the means of collecting and purifying the rain-water, there are several points, which are detailed at length by Surgeon-Major Wallace, to be attended to in order to prevent the water becoming impure.

2nd. The water for general cleansing of the barracks and ablution is obtained from two wells in the north-east and north-west corners of the barracks. It was analysed in 1874, and found unfit for drinking and cooking. Notwithstanding that it was marked up in distinct letters that this water was not to be used for drinking and cooking, it is believed that some soldiers did drink it.

The rain-water in No. 2 tank was found on the 14th September 1875 to be impure, after which no more was allowed to be taken from it. Some days after the sample just alluded to had been taken from No. 2 tank samples of water were taken from Nos. 1 and 2 tanks, Kinsale Barracks, and sent to the War Department chemist for analysis. The results of the analyses showed both to be very soft waters, and that *neither* of them were contaminated with drainage matters to an objectionable extent.

It must, however, be borne in mind, as explanatory of the different results in the above analyses, that some 9 feet of rain-water had been added to No. 2 tank between the time the sample referred to as having been examined in Dublin was drawn and that afterwards sent to London. The samples, although from the same tanks, were obtained under conditions very different.

From the appended Table it will be seen that 16 of the patients were from Kinsale, 4 from Charles Fort, and 1 from the camp at Charles Fort. As, however, three of those shown as admitted from Charles Fort were living in Kinsale twelve days before admission, and in the same huts from which several of the men who died were admitted into hospital, it is only reasonable to infer that they contracted the disease at Kinsale. The note at the foot of the Table, would also appear to afford sufficient evidence for attributing the origin of the fever in the man admitted from the camp to some sanitary defect in Kinsale barracks. There is then only one left the origin of whose disease can be in any way attributed to Kinsale. Fourteen of the admissions were from the huts built along the south wall of the barracks. Although the huts are far from being in a good state of repair, still there was nothing immediately connected with them to lead one to attribute the disease to them. Of the remaining seven cases, three contracted the disease while living in rooms on the north side of the barrack square, three on the east, while the seventh belonged to the 2nd Battalion 12th Regiment, and had not been in Kinsale barracks or its immediate vicinity for many months. Although the rooms on the north and east sides of Kinsale barracks are not such as they should be as regards ventilation and warming, still there is nothing in them or their immediate vicinity to give origin to enteric fever.

As regards the origin of the fever, there is no doubt it was due to one of the two following causes—(a) it was either owing to the bad quality of the water in No. 2 tank, or (b) the want of any means, either by traps or ventilation, for preventing the foul air in the underground drains leading off from the south-west angle of the barracks from being carried backwards and outwards where the surface join the underground drains. As regards (a), the analysis of the water made in Dublin showed that it was impure. The sample of water from No. 2 tank that was sent to London was not taken from the tank until after a heavy rainfall, when an additional 9 feet of water were added to what was in the tank at the time the sample sent to Dublin was drawn. The physical examination of the water made on the 14th September, (previous to the time that either sample was drawn), showed that it contained impurities. The subsequent steps taken to ascertain whether the construction of the tank and surroundings might be the cause of the outbreak afforded proof that the refuse water washed

from the soldiers' tins could pass with facility into that portion of the tank where the water, after being passed through filtering beds, was collected. For some months previous to the outbreak the whole of the drinking-water used by the troops (men, women, and children) was taken from No. 2 tank. As regards (b), noxious effluvia were frequently found to emanate from the two drains that open on the south-west angle of the barracks, more especially from the one that opens in a narrow space between the end of the barrack block of buildings on the west side of the barrack square and the stable. Almost right over this drain all the soldiers in the huts and as many of those living in the north and east sides of the barrack-square as cared to pass that way had to pass through the narrow space before reaching the only latrine then available. To enable the men in the huts to reach this latrine by any other route would entail a walk the whole length of the barrack square. The men, however, who lived in the north and east sides of the barracks would be more likely, owing to the barrack square being frequently occupied with the different parades and drills, to pass round the barracks to the latrine in question without passing over the drain alluded to. This difference in the position of the huts and barrack-rooms with regard to the drain referred to might account for the difference in the number of admissions from these two sources, and lead one to attribute the outbreak to the non-existence of ventilators in the drain in question."

Surgeon-Major Wallace reports that the surface drains, more especially those along the barrack buildings, are very much in want of repair. They should, in his opinion, be constructed of concrete, and the underground drains receiving the surface water should, if possible, be constructed so as to empty their contents directly into the Harbour, without any communication with the underground drains receiving the urine; but if they are connected, they should be supplied with traps and ventilators.

In answer to a communication from this Department, embodying a series of questions intended to elucidate the causes of the outbreak of fever, Surgeon-Major Wallace subsequently furnished the following information :—

"At the time of the outbreak of enteric fever at Kinsale, September, 1875, the whole of the water for drinking and cooking for officers, men, women, and children was rain-water taken from Nos. 1 and 2 tanks in the south-east and south-west angles of the barracks—viz., from No. 1 tank water was taken for cooking for all the unmarried soldiers; for cooking and drinking for all the patients in hospital; and for cooking and drinking for the commanding officer and his family. From No. 2 tank water was taken for drinking for all the unmarried soldiers; cooking and drinking for the married soldiers, wives and children; cooking and drinking for the unmarried officers.

On and after September 14th the water for cooking and drinking for officers, men, women, and children was procured from the spring previously referred to. It never came to my knowledge that chamber-pots or other utensils which had contained dejections were brought to be rinsed close to the tanks.

There were no children on the sick-list with enteric fever before the outbreak. On the 14th of September (seven days after Private W—, the first admission with enteric fever, was taken into hospital) three children living in barracks were placed on the sick-list with febricula. From the appearance of two of these, together with the statements of the parents of the children, I have every reason to believe that they were cases of enteric fever; but when I first saw them (September 21st) they were convalescent, and the characteristic signs of enteric fever were no longer present. The mother states that they were ill for some time before they were reported sick, which would account for the apparent error of their being looked on as convalescent from enteric fever eight days after being placed on the sick-list. They were no doubt ill for some time before being reported sick.

Dr. Dorman, the medical man who has the most extensive practice in Kinsale, informs me that during the months of July, August, and September 1875 there were under his care, in different parts of the town, 17 cases of fever, chiefly children. He states that they were very mild, and could not be looked on as cases of enteric fever, but rather as simple continued fever.

United Kingdom.

He also states that there is always more or less simple continued fever in Kinsale.

On the 13th September the barrack-serjeant's child, at Kinsale, was placed on the sick-list, under the head of diarrhoea. From the appearance of the patient, together with the parents' statements, I have reason to believe that it was a case of enteric fever. When I first saw the child the boy was very weak and emaciated, but none of the characteristic signs of enteric fever were then to be found. Unless these three children just referred to are looked on as cases of enteric fever, no other children in barracks suffered from it during the outbreak or immediately subsequent to it. The three alluded to had diarrhoea, the motions resembling pea-soup. No other children in barracks had diarrhoea.

None of the women in barracks suffered from enteric fever during the outbreak or immediately subsequent to it.

One officer, Lieut. R—, was on the sick-list from September 9th to October 4th, under the head of dyspepsia. When I took charge of him he was very weak, and had lost flesh considerably. From the history of the case, I have reason to look on this officer as having had enteric fever of a mild type.

Twelve days after the regiment left Kinsale Captain M— was attacked with enteric fever. This, I am confident, was contracted in Kinsale.

The 20 cases of enteric fever were drawn from 287 men. I think it is only right to say that one other case of enteric fever should be taken into account, viz., Private P—, who died at Bantry, October 19th. He lived previous to the outbreak in No. 4 hut, on the side next the urinal in the south wall of the barracks, and although he did not report himself sick until his arrival at Bantry on the 30th of September, still, as he was in Kinsale barracks until September 19th, it is only reasonable to suppose that he contracted the disease before leaving Kinsale barracks. Of the 20 cases treated in Kinsale 14 were admitted from among the 82 men living in the huts, but if Private P— be taken into account, there were 15 admissions with enteric fever from the huts. Or, as there were no admissions from among the occupants of No. 3 hut, the 15 admissions were, properly speaking, from the 67 men in huts 1, 2, 4, and 5—i.e., 1 in every $4\frac{1}{2}$ of the men living in huts 1, 2, 4, and 5 had enteric fever, or 1 in every $5\frac{1}{2}$ of those in huts, taking all the huts into account.

Of the 82 men living in the huts 65 drank beer and water, and of these 14, or 1 in every 4, had enteric fever, 6 ending in death. Of the above 82, 17 drank nothing but water from No. 2 tank, and of these 1 had fever, ending in recovery—i.e., 1 in 17 had fever.

Of the 15 cases of fever occurring among the men living in huts, 4 were from No. 5 hut, 4 from No. 4 hut, 4 from No. 2 hut, and 3 from No. 1 hut.

Of the 15 cases of fever occurring among the men living in huts, 6 slept in beds on the north side of the huts, next the barrack square, and 9 on the south, next the south barrack wall.

Of the 82 men in the huts, the average age of the 67 men who did not contract the fever was 21·71, while that of the 15 who had the fever was 19·61.

Taking the 20 cases of fever referred to in the question, together with Private P—, there are 21 to be taken into account in estimating the proportion of those attacked to the actual occupants of the huts and barracks. Of these 21, 15 lived in four of the five huts (one hut having complete immunity), and as there were 82 men in the five huts, 1 man in every $5\frac{1}{5}$ had enteric fever, while in the barrack-rooms 1 man in every $35\frac{1}{5}$ contracted it.

Why the third hut should have complete immunity it is difficult to say. The urinals in the south wall were situated the west one not far from huts 4 and 5, and the east one from huts 1 and 2; so that the third hut was not so near either urinal as huts 1, 2, 4, and 5. As regards construction the huts were all alike.

The supply of milk to the troops at Kinsale, as well as that sent to the station hospital, from August 3rd, 1874, until October 29th, 1875, was obtained from the same sources. There were no cases of fever in the houses of those who supplied it. The source of milk was, of course, considered.

The men living in No. 3 hut, those in N house, east side of barracks, and those in K and L houses, north side of barracks, had immunity from the fever. In no respect whatever was the condition of the men in No. 3 hut different

from that of those in huts 1, 2, 4, and 5, unless it be that No. 3 hut was not so near the urinals in the south wall as huts 1, 2, 4, and 5. Nor was the condition of the men living in houses K, L, and N different from that of those in G, H, O, and P.

The condition of the men living in the huts was different from that of those in the barrack-rooms, in so far that the former were much more liable to be exposed to the noxious effluvia from the underground drains in the south-west angle of the barracks.

The huts were within a few feet of the south wall of the barracks, where there were two urinals, the contents of which passed through this wall into open cesspools immediately behind. The men living in the huts were much nearer to these than those in the barrack-rooms, and in this respect their condition was different.

The distance from the nearest latrine to the nearest water-tank was 27 yards. The latrine, which was a cesspit of the worst description, has since been removed.

The underground drain which ran in front of the stable-door, on the south-west angle of the barracks, and which has been alluded to in my annual reports, was constructed of stones with more or less rough surfaces, and placed so as to make a section of it nearly a square, thereby affording every facility for the lodgement of anything washed along it. Into this drain passed urine, surface-water, the water from one of the ablution-rooms, and that from one of the women's wash-houses. From the outlet of this drain, near the stable-door, noxious effluvia were found to emanate.

The general course of the sewers was from north to south, the outfall of the system being about 143 yards from the south wall of the barracks, at the head of a small creek running up from the harbour. The outlet pipe was much below the level of the barracks. At low-water it was left exposed, but when the tide was high it was covered with water. The mouth of the pipe was protected by a flap.

In the beginning (about the first week) of September the old latrine or cesspit in the south-west angle of the barracks was closed and thoroughly cleansed (more so than had ever been done before), to enable the Engineer Department to commence the erection of latrines on the dry-earth system on the same site. The effluvia while so doing was very bad, much worse than on former occasions—*i.e.*, when emptied periodically. As this was the last time the cesspit was to be cleansed, and great care had to be taken to cleanse it thoroughly, it is quite possible that some soil or filth adhering to the sides and bottom of the cesspit, which may have been there for years, was then disturbed, and in the process of removal exposed to the sun. The weather about that time was very hot and oppressive.

The fact that only one had fever of those who drank nothing but the *suspected* water would tend to support the view that the water was not the cause.

I am rather inclined to look on the effluvia from the drains and the old cesspit in the south-west angle of the barracks as more likely to be the originating cause, more especially as Captain M—— and Lieutenant R—— never drank water (unless boiled), but were very much exposed (more so than the other officers) to the effluvia from the drains and cesspit in the south-west angle of the barracks.

Judging from the 82 men in the huts, the fever was more prevalent among the men who drank *beer and water* than among those who drank *water only*."

[A Board of Officers was ordered to assemble in September, to examine and report upon the sanitary condition of these barracks. The underground system of drainage was opened up and thoroughly examined, and the Board, together with the Commanding Royal Engineer and Principal Medical Officer of the district, made a number of recommendations of an important character in regard to the improvement of the drainage, both surface and deep; the water supply, its storage and filtration; and the ventilation and sanitary improvement of the barrack buildings generally. Extensive works have since been carried out by the Royal Engineer Department.]

No.	Rank and Name.	Age	Ser-vice	Date of Admission.	Whether from Kin-sale Barracks, Charles Fort, Camp, or patients in hospital.	If from Charles Fort, period stationed there.	From whence arrived at Charles Fort—viz., from Kin-sale, lodgings in town, &c.	Designation of Barrack-rooms and Huts.	If disease changed to Enteric Fever while in Hospital, how long and for what disease under treatment.
1	Pte. J. E.	20	3	Sept. 10	Kinsale ...	...	...	No. 4 Hut	
2	" R. P.	19	1	Sept. 11	Charles Fort ...	12 days ...	From No. 1 Hut, Kinsale.	C Hut, Charles Ft.	
3	" T. L.	20	7	Sept. 11	Kinsale ...	...	...	No. 4 Hut.	
4	" F. O.	20	1	Sept. 13	Kinsale ...	...	...	No. 2 Hut.	
5	" T. G.	19	5	Sept. 13	Kinsale ...	...	...	No. 4 Hut.	
6	" G. H.	18	1	Sept. 13	Charles Fort ...	12 days ...	From No. 2 Hut, Kinsale.	C Hut, Charles Ft.	
7	" W. H.	20	1	Sept. 13	Charles Fort ...	Since Nov. 1874.	From Kinsale.	No. 9 room, B passage, Charles Fort.	
8	" T. P.	20	1	Sept. 13	Kinsale ...	...	...	P passage, east side of barracks.	
9	" B. F.	21	3	Sept. 13	Kinsale ...	...	...	No. 5 Hut.	
10	" A. P.	19	1	Sept. 13	Kinsale ...	...	...	G passage, north side of barracks.	
11	" A. W.	19	1	Sept. 13	Kinsale ...	...	...	No. 2 Hut.	Six days under treatment for simple continued fever.
12	" G. C.	21	1	Sept. 14	Kinsale ...	...	...	No. 1 Hut.	Six days under treatment for febricula.
13	" W. M.	20	1	Sept. 15	Charles Fort ...	12 days ...	From No. 1 Hut, Kinsale.	C Hut, Charles Ft.	
14	" D. D.	20	1	Sept. 16	Kinsale ...	...	...	O passage, east side of barracks.	
15	" W. L.	19	1	Sept. 16	Kinsale ...	...	...	No. 2 Hut.	
16	Boy J. H.	15	3	Sept. 17	Kinsale ...	...	...	No. 5 Hut.	
17	" S. C.	15	1	Sept. 18	Kinsale ...	...	...	No. 5 Hut.	
18	Pte. J. L.	19	1	Sept. 21	Kinsale ...	...	...	O passage, east side of barracks.	Eight days under treatment with diarrhoea.
19	" T. L.	22	4	Sept. 21	Kinsale ...	...	...	No. 5 Hut.	Six days under treatment with diarrhoea.
20	L.-Corp. J. G.	24	5	Sept. 28	Kinsale ...	...	...	G passage, north side of barracks.	Eight days under treatment with influenza.
21	Pte. W. B.*	23	5	Sept. 30	Camp ...	11 days in camp at Charles Ft.	From A passage, north side of barracks, Kinsale.	Tent at Charles Ft.	

* This man first felt ill 17th September, two days before he marched out with the regiment from Kinsale to Charles Fort. He was in camp and did his duty until 28th September 1875, when, finding himself worse, he reported himself sick and was admitted into hospital there 28th September 1875, being transferred to the station hospital at Kinsale 30th September 1875.

In addition to the above, cases of enteric fever occurred during the year at Limerick, Haulbowline, Rocky Island, Dungarvan, Carlisle Fort, and Ballincollig. At Dungarvan, the patient, who was married and lived outside the barracks, contracted the disease from some of the inmates of the house in which he lodged, who were suffering from typhoid fever. At Carlisle Fort the cause was referred to the drinking water. The origin of the case at Ballincollig was traced by the Medical Officer to an untrapped drain in the shed where the man, who was a farrier in a cavalry regiment, used to work. This drain communicated directly with the sewer, and unpleasant smells were frequently noticed to proceed from it.

The following sanitary improvements have been effected during the year :—

Cork.—New cooking ranges furnished to the serjeants' mess kitchens and to some of the married quarters.

Kinsale.—Complete renewal of the pipes for conducting the rain-water into the underground tanks. New earth-closets constructed, and the old cess-pits demolished and filled in. A range of new married quarters on the latest plan has been built, and will soon be ready for occupation.

Cahir.—New pipes have been laid down for furnishing an increased supply of water to the barrack and ablution rooms. Earth-closets are in course of erection, and new married quarters are in hand.

Clonmel.—Considerable improvements have been made in the system of drainage.

Kilkenny.—An earth-closet has been constructed for the Provost cells.

Waterford.—The means of cooking have been improved, and a Deane's oven provided. In the Infantry Barracks the well which furnishes the chief water supply of the barracks has been deepened, as that supply used to fail during dry weather.

Spike Island.—The lighting and ventilation of several rooms in the case-mates barracks has been improved by making windows at the end opening into the ditch.

Buttevant.—Earth-closets for Officers, men, and hospital constructed.

Fermoy.—A range of married quarters has been commenced. In the old barracks a new cooking range has been provided for the Staff Serjeants' quarters, and the ventilation of a certain number of the barrack rooms improved. Little sheds have been built for the Cavalry and Artillery stables.

Limerick.—A new filter has been provided for the water-tank in the Castle Barracks and in the new barracks a cooking-range has been put up for the serjeants' mess.

Templemore.—Earth-closets have been commenced in lieu of the old cess-pit latrines, which were in a most objectionable state. A gymnasium has also been completed and taken into use.

Gymnasia.—Gymnasia now exist in the district at Cork, Fermoy, Limerick, Templemore, and Buttevant.

Section II. . .

On the Amount of Invaliding.

The number of men invalided in the whole force in the United Kingdom in each arm separately, is shown in the following Table :—

*United
Kingdom.*

		Troops generally.	Household Cavalry.	Dragoon Guards and Dragoons.	Royal Artillery (including the Depot Brigade.)	Foot Guards.	Infantry Regiments.	Depôts.	Royal Engineers.
Strength		92,802	1,204	10,389	15,870	5,309	40,870	8,808	3,664
1875..	Number discharged as Invalids ..	2,394	7	310	428	105	1,093	481	65
	Ratio per 1,000 ..	25·80	5·81	29·84	26·97	19·78	26·74	54·61	17·74
1865-74.	Ratio per 1,000 ..	27·39	15·30	28·00	30·30	23·34	25·67	42·18	14·66

For the whole force, the proportion of men invalided is 3·86 per 1,000 lower than in the preceding year, a result which serves to account for the fractionally higher death-rate in the present year. The diminished amount of invaliding extended to every arm except Foot Guards, the proportion for which is almost the same in both years.

Section III.

On the Number constantly Sick in Hospital, of the Troops serving in the United Kingdom.

		Troops generally.	Household Cavalry.	Cavalry of the Line.	Royal Artillery.	Foot Guards.	Infantry Regiments.	Depôt Brigade, Royal Artillery.	Depôts.
Mean daily sick per 1,000 of the strength	1875 ..	40·47	28·70	44·93	48·05	46·04	35·02	50·11	43·58
	1865-74.	40·56	29·71	38·49	42·50	44·01	35·56	50·10	*41·65
Average sick time to each Man in the course of the Year	1875 ..	14·77	10·48	16·40	15·71	16·80	12·82	18·29	15·91
	1865-74	14·81	10·85	14·05	15·51	16·06	12·98	18·29	*15·20
Average duration of the Cases	1875 ..	17·77	16·38	18·10	18·47	19·61	17·06	16·45	17·56
	1865-74	17·76	17·34	18·40	17·70	22·40	17·95	17·21	*17·05

* Exclusive of 1873.

Compared with the results in the preceding year, the proportions of constantly sick and the average sick time to each soldier are, in the whole force, higher by 1·86, and by ·68 per 1,000 men respectively, and are also higher for each arm except Household Cavalry, and Depôt Brigade Royal Artillery. The excess in the instance of Infantry is 1·48 and ·58 per 1,000 men respectively. The average duration of each case of sickness in the whole force, also exceeds the proportion for 1874 by 1·01 per 1,000 men, and is higher for every arm except Household Cavalry, Foot Guards, and Depôt Brigade Royal Artillery, a result, the probable explanation of which is found in the reduced rate of invaliding for the present year.

Section IV.

On the Influence of Age on the Mortality of the Troops serving in the United Kingdom.

The rates of mortality for the different ages (arranged in quinquennial periods), in the several arms of the service, are shown in the following Table:—

United Kingdom.

Corps.	Annual Ratio of Deaths per 1,000 Living, at the following Ages:—					
	Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and upwards.
Household Cavalry .. .. .	..	5·45	9·32	4·50	8·26	2·30
Cavalry	4·01	1·25	8·68	8·69	11·94	31·65
Royal Artillery	4·85	5·34	9·25	14·83	18·47	20·07
Foot Guards	1·36	7·26	7·87	5·37	10·53	30·57
Infantry Regiments	3·50	4·56	8·52	10·73	19·01	19·45
Depôt Brigade Royal Artillery, } Depôts and Brigade Depôts.. }	3·23	5·65	9·00	20·55	25·55	34·53
Ditto, ditto, ditto, 1865-74	4·19	7·72	10·86	19·49	22·84	22·33
Average of preceding, exclusive of } all Depôts }	3·58	4·40	8·68	10·82	17·24	22·20
Ditto, ditto, 1865-74	3·03	5·27	6·35	12·24	17·55	23·82
Civil Male { England and Wales .. } Population { Healthy Districts .. }	7·41 5·83	8·42 7·30	9·21 7·93	10·23 8·36	11·63 9·00	13·55 9·86

The results in the present agree with those in preceding years, in showing lower death-rates for soldiers in the first three groups of ages than those for men of the same ages in the healthy districts of England and Wales; and, commencing with the ages 30 and under 35, higher rates for the remaining groups, that for men of 40 and upwards, being considerably more than double the rate with which it is compared.

Section V.

On the Recruiting of the Army.

The annual medical reports show that 25,878 recruits were inspected in 1875; of these, 20,722 were examined by Army Medical Officers and 5,156 by Civil Medical Practitioners. The rejections on primary inspection amounted to 6,261, and on secondary inspection to 401, making a total of 6,662, or 257·44 per 1,000 of those examined.

	Number of Recruits Primarily Inspected.	Number Rejected.			Ratio of Rejections per 1,000 Inspected.	
		On Primary Inspection.	On Secondary Inspection.	Total.	Primary Inspections.	Both Primary and Secondary Inspections.
By Army Medical Officers	20,722	5,424	} 401	6,662	261·75	} 257·44
By Civil Medical Practitioners ..	5,156	837			162·34	
Total	25,878	6,261	401	6,662	241·94	257·44

United
Kingdom.

The proportion of recruits rejected at primary inspection by Army Medical Officers is considerably, and by Civil Medical Practitioners slightly, below that of 1874, and at both primary and secondary inspection the ratio is 19·78 per 1,000 less than in that year.

The native countries of the recruits, the ratios of the rejections, and the proportion per 1,000 furnished by each country are given in the following Table :—

Native Countries of Recruits.	Examined by Army Medical Officers.		Examined by Civil Medical Practitioners.		Rejected on Secondary Inspection.	Total.		Proportion Rejected per 1,000 Inspected.	Proportion per 1,000 of Recruits furnished by each Country.
	Inspected.	Rejected.	Inspected.	Rejected.		Primarily Inspected.	Rejected at Primary and Secondary Inspections.		
England and Wales...	14,110	3,779	4,346	726	311	18,456	4,816	260·94	713·2
Scotland	2,552	634	155	17	37	2,707	688	254·16	104·6
Ireland	3,840	959	637	93	52	4,477	1,104	246·59	173·0
British Colonies and Foreign Countries...	220	52	18	1	1	238	54	226·89	9·2
Total	20,722	5,424	5,156	837	401	25,878	6,662	257·44	1000·0

The ratios of rejections are lower for recruits born in the United Kingdom, and higher for those born abroad, than in 1874; the highest ratio being for Englishmen, and the lowest for foreigners; for the former, however, it is much lower than in 1874, while for the latter it is somewhat higher. The proportion of recruits furnished by Ireland is less, and by the other countries greater, than in the preceding year.

The following Table shows the number of recruits inspected and rejected for each Arm of the Service, the ratios of rejections, and the proportions per 1,000 inspected for each Arm :—

	Examined by Army Medical Officers.		Examined by Civil Medical Practitioners.		Total Primary Inspections.		Rejected on Secondary Inspection.	Total Rejections at Primary and Secondary Inspections.	Ratio of Rejections per 1,000 Recruits Inspected.	Proportion per 1,000 of Recruits inspected for each Arm.
	Inspected.	Rejected.	Inspected.	Rejected.	Inspected.	Rejected.				
Enlisted for—										
Household Cavalry ...	202	68	...	...	202	68	6	74	366·34	7·8
Cavalry of the Line ...	3,228	718	433	53	3,661	771	18	789	215·51	141·5
Royal Artillery	3,635	939	705	86	4,340	1,025	39	1,064	245·16	167·7
Royal Engineers	687	188	9	...	696	188	...	188	270·11	26·9
Foot Guards	507	154	570	152	1,077	306	135	441	409·47	41·6
Infantry and Departmental Corps	12,463	3,357	3,439	546	15,902	3,903	203	4,106	258·21	614·5
Total	20,722	5,424	5,156	837	25,878	6,261	401	6,662	257·44	1000·0

The rejections in all the Arms are lower than in 1874, the decrease being most marked in the Household Cavalry; as for the previous year, the Foot Guards show the highest ratio of rejections, and the Cavalry of the Line the lowest.

TABLE showing the Number of Recruits Rejected in 1875, with the causes arranged in Classes, and the Ratio per 1,000 in each Class.

United Kingdom.

Causes of Rejection, in Classes.	Recruits Rejected on Primary Inspection.						Rejections on Secondary Inspection.	Total Rejections on Primary and Secondary Inspections.	
	Examined by Army Medical Officers.		Examined by Civil Medical Practitioners.		Total.				
	20,722		5,156		25,878			25,878	
	Numbers Rejected.	Ratio per 1,000 Rejected.	Numbers Rejected.	Ratio per 1,000 Rejected.	Numbers Rejected.	Ratio per 1,000 Rejected.		Numbers Rejected.	Ratio per 1,000 Rejected.
1. Syphilis	260	12·55	48	9·31	308	11·90	19	327	12·63
2. Scrofula	106	5·12	10	1·94	116	4·48	3	119	4·60
3. Phthisis	83	4·01	16	3·10	99	3·83	2	101	3·90
4. Impaired Constitution	127	6·13	17	3·30	144	5·57	28	172	6·65
5. Muscular Tenuity and Debility...	961	46·38	70	13·58	1,031	39·84	69	1,100	42·51
6. Other General Diseases	108	5·21	7	1·36	115	4·44	2	117	4·52
7. Diseases of Nervous System	21	1·01	2	·39	23	·89	2	25	·96
8. Weakness of Intellect	25	1·21	2	·39	27	1·04	4	31	1·20
9. Defective Vision	956	46·14	124	24·05	1,080	41·73	49	1,129	43·63
10. Diseases of Eyes and Eyelids	109	5·26	2	·39	111	4·29	9	120	4·64
11. Diseases of Nose and Mouth	9	·43	...	...	9	·35	...	9	·35
12. Disease of Ears	5	·24	1	·19	6	·23	1	7	·27
13. Deafness	43	2·08	...	...	43	1·66	...	43	1·66
14. Impediment of Speech	12	·58	1	·19	13	·50	3	16	·62
15. Disease of Heart	410	19·79	91	17·65	501	19·36	50	551	21·29
16. Diseases of Arteries (Aneurism)	13	·63	...	...	13	·50	3	16	·62
17. Disease of Veins (Varix)	374	18·05	82	15·90	456	17·62	16	472	18·24
18. Disease of Lungs (except Phthisis)	39	1·88	10	1·94	49	1·89	7	56	2·16
19. Loss or Decay of many Teeth	133	6·42	12	2·33	145	5·60	11	156	6·03
20. Hernia	187	9·02	80	15·52	267	10·32	17	284	10·97
21. Laxity of Abdominal Rings	75	3·62	13	2·52	88	3·40	3	91	3·51
22. Hæmorrhoids	40	1·93	6	1·16	46	1·78	...	46	1·78
23. Diseases of the Urinary Organs	20	·97	7	1·36	27	1·04	...	27	1·04
24. Varicocele	231	11·15	83	16·10	314	12·13	12	326	12·60
25. Other Diseases of the Genital Organs (not Syphilitic)	31	1·50	5	·97	36	1·39	7	43	1·66
26. Defects of Upper Extremities, from Fracture, Contraction, Luxation, &c.	132	6·37	18	3·49	150	5·80	12	162	6·26
27. Defects of Lower Extremities, from Fracture, Contraction, Luxation, &c.	193	9·31	23	4·46	216	8·35	21	237	9·16
28. Flat Feet	108	5·21	18	3·49	126	4·87	9	135	5·22
29. Diseases of Joints	47	2·27	8	1·55	55	2·13	5	60	2·32
30. Other Affections of Bones and Muscles	42	2·03	1	·19	43	1·66	9	52	2·01
31. Ulcers, Wounds, and Cicatrices	89	4·30	7	1·36	96	3·71	6	102	3·94
32. Other Affections of the Cutaneous System	92	4·44	20	3·88	112	4·33	1	113	4·37
33. Malformation of Ears	1	·05	...	...	1	·04	...	1	·04
34. " " Nose and Mouth	2	·10	...	...	2	·08	...	2	·08
35. " " Chest and Spine	291	14·00	50	9·70	341	13·18	18	359	13·87
36. " " Urin: or Gen: Organs	7	·34	...	...	7	·27	1	8	·31
37. Marks of Punishment, or of letter D. or B. C.	15	·72	...	...	15	·58	1	16	·62
38. Marks of Cupping, Blistering, &c.	27	1·30	3	·58	30	1·16	1	31	1·20
Total Rejected	5,424	261·75	837	162·34	6,261	241·94	401	6,662	257·44

*United
Kingdom.*

Syphilis, impaired constitution, muscular tenuity, defective vision, diseases of the heart and of the veins, loss of teeth, hernia, varicocele, defects of the upper and lower extremities, flat feet, and malformation of the chest and spine were, as in 1874, the chief causes for rejection; and of these classes the proportions rejected for muscular tenuity, loss of teeth, and varicocele are higher, and for the remainder lower, than in the preceding year. Rejections for defective vision are shown in a separate class this year, and are not entered, as heretofore, with diseases of the eye. This class (defective vision) shows a higher ratio of rejections than any other, but is nearly equalled by that of muscular tenuity and debility, the former exceeding the latter by 1·12 per 1,000 only.

Table showing the ages of all recruits, as given at their primary inspection, and the proportion per 10,000 at each age.

Ages.	Numbers Inspected.			Proportion in 10,000.		
	By Army Medical Officers.	By Civil Medical Practitioners.	Total.	Examined by Army Medical Officers.	Examined by Civil Medical Practitioners.	Total.
Boys under 17	744	45	789	359	87	305
From 17 to 18	368	56	424	2,177	109	164
„ 18 to 19	5,405	1,369	6,774	2,608	2,655	2,618
„ 19 to 20	4,685	1,259	5,944	1,261	2,442	2,297
„ 20 to 21	2,729	739	3,468	317	1,433	1,340
„ 21 to 22	2,003	528	2,531	967	1,024	978
„ 22 to 23	1,734	434	2,168	837	842	838
„ 23 to 24	1,405	312	1,717	678	605	663
„ 24 to 25	1,313	381	1,694	634	739	655
25 and upwards	336	33	369	162	64	142
Total	20,722	5,156	25,878	10,000	10,000	10,000

In dividing (as in previous years) the recruits into two classes—viz., into those under 20 years of age and those of 20 years and upwards—it will be found that the latter are in excess, by 224 per 10,000, of those of the corresponding class in 1874; the ratios being higher, at all the ages, in this class except between 20 and 21, at which age the proportion is much lower. Among recruits under 20 years, there is a considerable increase in the proportion of boys under 17 years, a considerable decrease between 17 and 19, and a slight decrease between 19 and 20.

Table showing the heights of recruits and the proportion per 10,000 at each height:—

Heights.				Number Inspected.			Proportion in 10,000 recruits examined.		
				By Army Medical Officers.	By Civil Medical Practitioners.	Total.	By Army Medical Officers.	By Civil Medical Practitioners.	Total.
Ft.	In.	Ft.	In.						
Under 5	3	..	..	683	41	724	330	79	280
5	3 to 4	..	..	160	6	166	77	12	64
5	4 " 5	..	..	2,085	232	2,317	1,006	450	895
5	5 " 6	..	..	5,406	1,424	6,830	2,609	2,762	2,639
5	6 " 7	..	..	4,448	1,220	5,668	2,146	2,366	2,190
5	7 " 8	..	..	3,689	1,004	4,693	1,780	1,947	1,813
5	8 " 9	..	..	2,171	589	2,760	1,048	1,142	1,067
5	9 " 10	..	..	1,152	372	1,524	556	722	589
5	10 " 11	..	..	545	164	709	263	318	274
5	11 " 6	0	..	222	64	286	107	124	111
6	0 and upwards	..	..	161	40	201	78	78	78
Total ..				20,722	5,156	25,878	10,000	10,000	10,000

On comparing this Table with the corresponding one of last year, a considerable decrease is found in the ratios of recruits comprised in the two classes between 5 ft. 4 in. and 5 ft. 6 in., and an increase in all the other classes. The proportion under 5 ft. 6 in. is 553 per 10,000 lower than in 1874.

Table showing the weights of 14,222 recruits examined by Army Medical Officers, and the proportion per 10,000 at each weight. There is no information on this head available respecting those primarily inspected by Civil Medical Practitioners and by Army Medical Officers at many of the smaller stations :—

Weights.				Numbers Weighed.	Proportion per 10,000.
lbs.	lbs.				
Under 100		..	..	466	328
From 100	to 110	..	..	110	77
"	110 to 120	..	..	1,646	1,157
"	120 to 130	..	..	3,791	2,666
"	130 to 140	..	..	4,142	2,912
"	140 to 150	..	..	2,593	1,823
"	150 to 160	..	..	947	666
"	160 to 170	..	..	360	253
"	170 and upwards	..	..	167	118
Total ..				14,222	10,000

The proportions of recruits at the more advanced ages and at greater heights exceeding those of 1874, a higher standard of weight may naturally be expected. There is, however, an increase of 113 only per 10,000 of recruits weighing above 120 lbs. ; a greater increase than this might have been looked for, since the proportions of recruits measuring over 5 ft. 6 in., and of those over 20 years of age are respectively 553 and 224 per 10,000 higher than in the previous year ; the decrease occurring entirely among those weighing between 100 and 110 lbs. and 120 and 130 lbs. ; at all the other weights the ratios are higher.

United Kingdom. The state of education among recruits primarily inspected by Army Medical Officers is shown in the following Table. There is no information available on this head respecting those examined by Civil Medical Practitioners.

	Numbers examined.	Ratio per 1,000.
Unable to read	3,180	153·5
Able to read only	1,886	91·0
Able to read and write	15,656	755·5
Total	20,722	1000·0

The proportion of recruits able to read and write is higher, and of the other two classes lower, than in the previous year.

The occupations of recruits previous to enlistment, the proportion rejected, and the proportion furnished by each group, are shown in the following Table :—

Occupations of Recruits.	Number Inspected.	Rejected at Primary Inspection.	Rejected at Secondary Inspection.	Total Rejected.	Ratio per 1,000 Rejected.	Proportion per 1,000 of Recruits furnished by each group of occupations.
1. Labourers, Husbandmen, Servants, &c.	15,282	3,691	232	3,923	256·7	590·5
2. Manufacturing Artisans (as Clothworkers, Weavers, Lace Makers, &c.)	3,058	831	35	866	283·2	118·2
3. Mechanics employed in Occupations favourable to physical development (as Carpenters, Smiths, Masons, &c.)	4,545	1,126	91	1,217	267·8	175·6
4. Shopmen and Clerks	1,927	491	40	531	275·6	74·5
5. Professional Occupations, Students, &c.	277	46	1	47	169·7	10·7
6. Boys under 17 years of age	789	76	2	78	98·9	30·5
Total	25,878	6,261	401	6,662	257·44	1000·0

A larger proportion of manufacturing artisans and of mechanics was rejected than in 1874; in the other groups the proportions are lower. Manufacturing artisans show the highest ratio of rejections, and boys under 17 years the lowest. There is a falling off in the proportion of labouring men and of mechanics, and an increase in each of the other groups.

The following Table shows the condition, as to vaccination, of recruits found fit for the Service on primary inspection by Army Medical Officers. No information is available respecting those primarily inspected by Civil Medical Practitioners :—

	Number of Recruits found fit for the Service.	Proportion per 1000.
Had marks of vaccination	13,933	910·7
Had marks of smallpox	784	51·3
Had neither marks of vaccination nor smallpox	581	38·0
Total	15,298	1000·0

When compared with the corresponding Table of last year there is a slight increase in the proportion of recruits having marks of vaccination, and a decrease in those having marks of smallpox. The proportion without marks is almost identical with that of 1874.

III. ON THE HEALTH OF THE TROOPS SERVING IN THE MEDITERRANEAN.

Section I.—Sickness and Mortality.

I.—GIBRALTAR.

STATISTICAL REPORT.

THE average annual strength of the force serving at Gibraltar in 1875, was 4,719 non-commissioned officers and men; the admissions into hospital among them were 2,930; the deaths, including those of 7 invalids, were 26; the rate of admissions is therefore 620·9, and that of deaths 5·50, per 1,000 men; the first is a little higher, the last is 1·13 per 1,000 lower than the corresponding rate of the preceding year, both are lower than the rates of the average of ten years, that of deaths, materially so.

The corps of which the garrison was composed, and certain of the most important of their health statistics, are shown in the following Table :—

Gibraltar.

Gibraltar.

Corps.	Completed years of residence in the Mediterranean Commands.	Average Annual Strength.	Admissions into Hospital.	Died.			Invalids sent Home.	Average Daily Sick.	Annual rate per 1,000 of strength.				Average sick time to each Soldier.		Average duration of cases of sickness.
				At Gibraltar.	Of Invalids.	Total.			Admitted.	Died.	Invalids sent Home.	Daily Sick.	Days.	Days.	
17th Brigade Royal Artillery ..	1	1,002	720	4	2	6	27	51.13	718.6	5.99	26.95	51.03	18.62	25.94	
Royal Engineers ..	..	347	196	..	2	2	9	9.35	564.8	5.76	25.94	25.95	9.84	17.41	
1st Battalion 4th Foot ..	1	649	286	2	1	3	7	15.90	440.7	4.63	10.79	24.64	9.07	20.58	
2nd " 23rd " ..	1	648	436	3	..	3	11	24.92	672.8	4.63	16.97	38.46	14.04	20.86	
31st Foot ..	8	648	230	2	1	3	8	15.50	354.9	4.63	12.35	23.92	8.56	24.12	
69th " ..	2	629	349	5	..	5	16	21.05	551.8	7.95	25.44	33.47	12.22	22.01	
2nd Battalion Rifle Brigade ..	1	667	671	2	..	2	21	40.31	1006.0	3.00	31.48	60.43	22.06	21.93	
Army Service Corps ..	..	57	24	1	..	1	1								
Army Hospital Corps ..	..	38	16	..	..	..	2	2.97	325.6	7.75	46.51	23.03	..	..
Staff and attached Men ..	..	34	2	..	..	..	3								

* In addition to the above, one Invalid of the 81st Foot, sent home before that Corps left Gibraltar for India, died at Netley in 1875.

REPORT FOR 1875.

69

The only change in the composition of the garrison during the year, was *Gibraltar*. that caused by the arrival of a company of Engineers from Bermuda, on the 1st of February.

The corps which show the most favourable results as regards health, are the 1st Battalion 4th Foot, which had been one year at the station, and the 31st Foot, which had served eight years abroad (at Malta and at Gibraltar). The 17th Brigade Royal Artillery, and the 2nd Battalion Rifle Brigade, both of which completed their first year of service at the station during the year, show the most unfavourable results in all particulars, with the exception, that the death rate in the last-named corps is very low. The results in the case of the 2nd Battalion 23rd Foot which corps, like the 2nd Battalion Rifle Brigade had served in the Gold Coast Expeditionary Force, and which arrived at the station in the same year, are favourable, its admission rate is moderate, its death and daily sick rates are low, its invaliding rate however is high.

The classes and orders of diseases, by which the sickness and mortality in the Command were caused, are shown in the following Table:—

Orders.	Diseases.	1875. Average Strength, 4,719.					1869-74.		1875. Infantry at Home.		
		Admitted into Hospital.	Deaths.			Annual ratio per 1,000 of Strength.	Annual ratio per 1,000 of Strength.		Annual ratio per 1,000 of Strength.		
			At Gibraltar.	Of Invalids.	Total.		Admitted.	Died.	Admitted.	Died.	
	I. General Diseases.										
1	Febrile Group ..	594	6	1	7	125.9	1.49	82.3	1.43	42.8	.66
2	Constitutional „ ..	529	5	1	6	112.1	1.27	103.7	1.43	123.9	2.84
	II. Local Diseases.										
	Diseases of the—										
1	Nervous System ..	31	..	..	..	6.6	..	7.4	.80	12.2	.83
2	Eye	94	..	..	..	19.9	..	17.8	..	20.1	..
3	Ear	3	..	..	..	.6	..	4.1	..	4.0	..
4	Nose	2	..	..	..	.4	..	.7	..	.7	.02
5	Circulatory System ..	59	2	3	5	12.5	1.06	10.8	.90	17.3	1.13
6	Absorbent „ ..	15	..	..	..	3.2	..	4.4	..	15.0	..
7	Ductless Glands ..	..	..	..	..	..	..	.2	..	.1	..
8	Respiratory System ..	218	1	..	1	46.2	.21	43.5	.87	97.1	1.71
9	Digestive „ ..	404	2	..	2	85.6	.42	81.7	.15	110.6	.57
10	Urinary „ ..	212	1	1	2	44.9	.42	70.7	.30	65.0	.25
11	Generative „ ..	45	..	..	..	9.6	..	15.1	..	10.0	..
12	Organs of Locomotion ..	19	..	..	..	4.0	..	5.2	.08	4.8	.02
13	Cellular Tissue ..	70	..	..	..	14.8	..	13.8	..	21.8	..
14	Cutaneous System ..	191	..	..	..	40.5	..	65.2	..	87.8	.02
	III. Conditions, &c.										
	Debility	46	..	..	..	9.8	..	4.6	..	11.7	..
	IV. Poisons ..	11	1	..	1	2.3	.21	8.2	.15	2.6	.10
	V. Injuries.										
2	Accidental	377	1	..	1	79.9	.21	94.1	.45	102.7	.54
3	Homicidal .. ..	..	..	..	..	..	..	..	..	..	.02
4	Self-inflicted	1	..	..	..	.2	..	..	.23	..	.15
5	Judicial .. ..	..	..	..	..	..	..	.2	..	.2	.02
	VI. Surgical Operations ..	..	..	1	1	..	.21	..	..	.2	..
	No appreciable Disease ..	9	..	..	..	1.9	..	.9	..	1.4	..
	Unknown .. ..	..	..	..	..	..	..	..	..	..	.02
	Total	2,930	19	7	26	620.9	5.50	634.6	6.29	752.0	8.90
	Average of 10 Years 1865-74 ..	..	..	..	..	656.6	8.31	..	..	..	..

Gibraltar.

GENERAL DISEASES.—Compared with the preceding year, there is a considerable increase in the rate of admissions for diseases of this class, whilst the rate of deaths is lower; the increased prevalence occurred in both orders of the class, and in both is associated with reduced mortality.

The admissions and deaths, from the principal diseases of this class, are shown in the following Table :—

General Diseases.	Admitted.	Died.	Annual ratio per 1,000.			
			1875.		1869-74.	
			Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>						
Eruptive Fevers	1	..	..	..	3·0	·07
Continued „	428	6	90·5	1·23	64·9	1·21
Paroxysmal „	145	..	30·9	..	9·9	·11
Influenza .. .. .	..	..	..	..	2·3	..
Erysipelas	14	..	3·0	..	1·7	..
Other diseases of this group	7	1	1·5	·21	·5	·04
Total of Febrile Group.. ..	595	7	126·1	1·49	82·3	1·43
<i>Constitutional—</i>						
Rheumatism	263	..	55·7	..	40·6	·04
Syphilis	227	..	48·1	..	51·8	·04
Scrofula, Phthisis, &c.	32	6	6·8	1·27	8·3	1·24
Scurvy and Purpura .. .. .	..	..	..	..	·2	..
Anæmia	4	..	·9	..	2·0	..
Other diseases of this group	3	..	·6	..	·8	·11
Total of Constitutional Group ..	529	6	112·1	1·27	103·7	1·43

Eruptive Fevers.—One admission only, due to vaccination, is returned in this group of fevers.

Continued Fevers.—The rate of prevalence of fevers of this nature is nearly one-third higher, but the rate of deaths due to them is one-third less, than the corresponding rate of 1874.

Typhus Fever.—One admission is returned, that of a man of the Royal Artillery, who was quartered at Rosia Barracks; the only remark made respecting the case is, that its cause could not be satisfactorily made out.

Enteric Fever.—Twenty-one admissions from this fever are returned; five of the cases terminated fatally. The men attacked belonged to five different regiments, eleven of the whole number to the 2nd Battalion Rifle Brigade, four to the 2nd Battalion 23rd, three to the 69th, two to the 1st Battalion 4th Foot, and one to the Royal Artillery, so that generally speaking the greatest prevalence of the disease was in the regiments newly arrived, or lately arrived in the Command; the most important exception to this, was in the case of the Royal Artillery. On the other hand, the 31st Foot which had served abroad for more than eight years, and the Royal Engineers, the different companies of which had also been abroad for some time, return no admissions for enteric fever in the year. The experience of one year would not be decisive as to the relation existing between the prevalence of enteric fever, and locality in Gibraltar, but for comparison a record of its prevalence in the different barracks, would have been useful; as the regiments were in detachments, and changed barracks during the year, the knowledge cannot be arrived at from an examination of the returns. The Medical Officer of the 2nd Battalion Rifle Brigade, notes a fact which if supported by further observation, may throw light on the causes which determine the distribution of attacks of enteric fever in the men of the

garrison of Gibraltar; his remarks are: "Eleven cases occurred in the battalion during the year; the first case in the month of September; the evidence "I think points to the Camp at the North Front, as the place where the "disease was contracted; nearly all the men who had it were taken sick "there, or some time soon after being quartered at the Camp." All of the admissions for enteric fever, except three, took place in the last quarter of the year.

Simple Continued Fever.—362 admissions were due to *simple continued fever*, and 34 to *febricula*; one death is returned as caused by the first-named disease.

Paroxysmal Fevers.—The rate of admissions for fevers of this nature, is double that of the preceding year; no deaths were caused by them. 89 admissions are returned as having been due to *Ague*, and 56 to *Remittent fever*; half of the admissions for paroxysmal fevers were men of the 2nd Battalion Rifle Brigade, which in 1874 had served with the Gold Coast Expeditionary Force; the 2nd Battalion 23rd Foot (which also served with the same force), returns comparatively few admissions (19 in all) for fevers of this nature; the 17th Brigade Royal Artillery, returns 42, being a larger number than the admissions for the same kind of fevers of all the corps together, excepting the 2nd Battalion Rifle Brigade. The comparatively high rate of prevalence of paroxysmal fevers in the Royal Artillery, is attributed to the circumstance, that the men of the Brigade when in England, were quartered in the marshy districts bordering on the Thames, viz., at Sheerness, the Isle of Grain, and Tilbury Fort.

The Medical Officer of the 2nd Battalion Rifle Brigade, states in his report that: "the malarious fevers this year have been accompanied with "diarrhœa, leading often to a suspicion of enteric fever, but the type is different." Writing on the subject of simple continued fever, the Medical Officer of the station hospital remarks—"many of these cases, often vaguely alluded to as "rock fever," vary considerably in their progress from the usual course of "such fevers, and appear to me to be of a hybrid character, due to the "combined effects of enteric, and malarial poisoning, and consequently not "characterized by all the distinctive symptoms of either;" in the same connection he states that "the thermometrical observations varied considerably from those usually recorded in enteric fever, although characteristic "rose-coloured spots were sometimes observed, and diarrhœa frequently "formed an urgent symptom."

Erysipelas.—Five of the 14 admissions for this disease were those of men of the 1st Battalion 4th Foot, and four were those of men of the Royal Artillery.

Other Diseases.—One admission for diphtheria is returned, that of a man of the 2nd Battalion Rifle Brigade. The death was that of an invalid from the Royal Engineers, sent home on account of stricture; it was proximately due to pyæmia.

Rheumatism.—The rate of prevalence a little exceeded that of the preceding year, a circumstance in harmony with the increased prevalence of "fever."

Syphilis.—The rate of admissions for this disease, is higher than that of the preceding year, by 18.9 per 1,000 men, but it is lower than the average of the preceding six years; its proportional prevalence was greatest in the Rifle Brigade, and the 2nd Battalion 23rd Foot, and least in the Royal Engineers.

Scrofula, Phthisis, &c.—The rate of prevalence for diseases in this group is a little lower than in 1874, whilst that of deaths is a little higher; the admissions for phthisis were not materially more numerous in one corps than in another.

LOCAL DISEASES.—*Diseases of the Nervous System*, caused fewer admissions than in 1874; one-third of the whole was due to neuralgia.

Diseases of the Eye.—A relatively considerable increase occurs in the rate of admissions from these diseases on that of the preceding year, caused by the greater prevalence of conjunctivitis; the Principal Medical Officer states that this was due to the heat and glare of an unusually hot summer, and that the affection was not confined to any particular regiment.

Gibraltar.

Diseases of the Circulatory System. were in a rate a little in excess of that of the preceding year, and of the average, but in all, only 59 admissions are returned, of which 40 were on account of palpitation; the 69th Foot returns the greatest number of admissions for this disease.

Diseases of the Respiratory System.—These diseases are in a slightly lower rate of prevalence than in 1874, and corresponding with this, the rate of deaths is also lower; of the 218 admissions in the group, 206 were due to bronchitis. Respecting the death of a man of the 31st Foot returned as due to pneumonia, the Medical Officer of the regiment states that the cause of death was “typhoid pneumonia,” from the remark of the Medical Officer who treated the case, it would appear that the man had been ailing for two or three weeks before admission, and that he was admitted for diarrhoea; after death, examination showed that the small intestines were “slightly inflamed; no deposit in the glands.”

Diseases of the Digestive System.—The rate of prevalence of diseases of this order is lower than that of 1874, by 8·1 per 1,000 men, the rate of deaths is almost the same in both years. One-fourth of the admissions was from dyspepsia; the relatively large number of admissions from colic (45) raises the suspicion that the wine drank by the men, may have been unwholesome. 11 admissions were due to tape-worm. One of the two deaths in this order was due to hepatitis; the other resulted proximately from hæmorrhage, caused by an ulcer in the stomach.

Diseases of the Urinary System.—The rate of admissions differs only fractionally from that of the preceding year.

CONDITIONS, &c.—The rate of admissions for *debility*, is double that of 1874; no doubt this is explained by the greater prevalence of “fever” in the present year.

POISONS.—There were only 11 admissions in this class, giving a rate less than the half of that of 1874; all were due to delirium tremens, which disease caused death in one instance; as in the preceding year the admissions were relatively most numerous in the Royal Engineers; there were no admissions for delirium tremens in the 1st Battalion 4th Foot, in the 31st, or in the 2nd Battalion Rifle Brigade.

INJURIES.—Accidental Injuries.—The rate of admissions is 30·5 per 1,000 men lower than in the preceding year; one injury proved fatal, that occurring to a soldier of the 2nd Battalion 23rd, who was accidentally shot when on convict guard.

Self-Inflicted Injuries.—Only one admission from an injury of this nature took place.

Officers.

The average annual strength of officers in the Command was 172; of these, 129, being in the rate of 750 per 1,000, were placed on the sick report during the year; two died, being in the rate of 11·63, and 12, being 69·77 per 1,000 were granted sick leave to England; these results compare unfavourably with the corresponding ones referring to the non-commissioned officers and men, but as the number of officers furnishing the data is small, no fair comparison between the two classes can be made. Two of the illnesses were due to enteric fever, an attack of which disease proved fatal to an officer of the 1st Battalion 4th Foot.

Women.

The average annual strength of the women (wives of non-commissioned officers and men) was 458; the sickness amongst them was in the rate of 498, and the mortality in the rate of 10·92, per 1,000. Four of the five deaths were due to enteric fever, the other was caused by ulcer of the stomach. The prevalence of “fever” was greatest amongst the women of the 1st Battalion 4th Foot, and of the 2nd Battalion 23rd Foot, but in both cases the prevalence was much restricted to women residing in certain buildings; in the case of the first-named regiment, the new quarters at Scud Hill, and the quarters at Rosia, in the case of the last-named regiment, the quarters in Daninos’ Buildings.

*Children.**Gibraltar.*

The average annual strength of the children of the non-commissioned officers and men in the Command, was 925; the rate of sickness among them is 350, and that of deaths 33·51, per 1,000.

The most prevalent diseases were simple continued fever, bronchitis, and diarrhoea; eruptive fevers were comparatively infrequent, only 12 cases were treated; two children were attacked by diphtheria, one of them fatally. Only one case of enteric fever is returned, but the remarks of the Medical Officer of the 1st Battalion 4th Foot have a bearing on this matter, they are—"I may state that in my opinion this fever was *enteric*, for whether called, "simple continued, typhoid, remittent, or diarrhoea, (as it was apt to be when "occurring in children), it usually involved the bowel, and bowel glands, more "or less."

SANITARY REPORT.

Surgeon-General Balfour reports :—"The following appear to be the most important sanitary requirements and defects in the Garrison :

General.—1. A Sanatorium at Windmill Hill to which convalescents from fevers, and others requiring change, might be sent; quarters for two officers to form part of it; this would in many cases save the necessity of sick leave to England. 2. Hospital for the treatment of wives and children of soldiers; this (although authorised), has not yet been provided. 3. A drying closet attached to each barrack, to enable the men coming off duty in wet weather to have their clothes dried. This is urgently required, as very many of the barrack rooms have no fireplaces, and the men have no means of drying their clothes, but must continue to wear them wet or very damp. 4. A good recreation ground for the troops. 5. Married quarters in place of Daninos Buildings (hired) which are unfit for occupation, and are a source of disease among the occupants."

Under the head of *Local Requirements* Dr. Balfour indicates a number of minor alterations and improvements, as necessary on sanitary grounds—in the way of drainage, ventilation and warming, &c., of the different buildings occupied by the troops; and he remarks that all the latrines at the station hospital require reconstruction, as they are of antiquated pattern, imperfectly flushed and offensive in hot weather.

"*Daninos Buildings* (hired married quarters) should be condemned as unfit for occupation, and replaced by new quarters. In the meantime the wash-house is quite inadequate, and should be enlarged by taking in room No. 17, and erecting additional boilers.

Rosia Married Quarters, are as reported last year. They should be taken down and replaced by new quarters.

From the list of sanitary services furnished by the Commanding Royal Engineer, it will be seen that while many small and not unimportant improvements have been effected, no great sanitary work has been carried out during the year. At Buena Vista Block Barracks louvered ventilators are at present being introduced into the upper rooms, and it is hoped will be found beneficial.

Diet.—During the summer preserved Australian Meat was issued to the troops once a week. It was not generally liked by the men, but did not seem in any way to affect their health. I think it might be desirable, if it could be so arranged, to issue mutton once a week as I have reason to believe the men get tired of the monotony of beef.

Clothing.—In the beginning of summer helmets were taken into use by the troops generally. They were light, comfortable, and a most efficient protection for the head against the sun's rays. I believe they were much liked both by officers and men. The men of the Royal Engineers continued to wear their woollen clothing through the summer. I beg strongly to recommend the issue of suitable summer clothing to this corps, which from the nature of its duties seems to require it more than any other in the Garrison.

Gibraltar.

Considering the frequent alternations of temperature here, the hot days and comparatively cold nights at some seasons, the co-existence of a hot sun and chilly wind, I think it would be very desirable to introduce flannel shirts into general use among the troops instead of calico. I have no doubt it would tend to reduce the amount of bronchitis, and of the serious pulmonary disease to which it often gives rise.

Drainage.—The drainage works at Rosia and Europa, and those for the supply of North Front water at Windmill Hill and Europa, are rapidly advancing, and will probably be completed before midsummer. I was dissatisfied with the manner in which this was being done, as the water and sewer pipes were being laid in close proximity to each other. On a representation to His Excellency the Governor this was stopped, and the portion which had already been done in this manner was ordered to be re-laid.

Water Supply.—The question of water supply has given rise to some anxiety owing to the deterioration in quality of the North Front water during the summer. It had in it a large amount of chlorides. The question has, I understand, been referred to Mr. Ramsay, the head of the Government School of Mines and Director of the Geological Survey, for his opinion as to the practicability of improving it by deep borings. The water does not seem to have proved a cause of disease, but it is unpleasant to the taste and very hard. The supply of rain water in the tanks was very low but the winter rains have refilled them."

II.—MALTA.

STATISTICAL REPORT.

Malta.

In addition to changes in the composition of the force stationed in the Command, due to the replacement of invalids, and time-expired men, by drafts of fresh troops, one regiment—the 28th Foot—left on the 17th of December for service in the China Command, and was replaced by the 98th Foot, which arrived from the West Indies on the 13th of December.

The average annual strength of the force during the year (exclusive of the Royal Malta Fencible Artillery) was 4,506 non-commissioned officers and men; the admissions into hospital were 4,083, the deaths, including those of 11 invalids at Netley, were 47, being in the proportions of 906·1, and of 10·43 per 1,000 of the strength respectively; both proportions are higher than those of the preceding year, that of admissions by 9·2, that of deaths by 2·50 per 1,000 men.

Certain of the details relating to the sickness of each corps serving in the Command during the year, are given in the following Table:—

Corps.	Completed year of service in Command.	Average Annual Strength.	Admissions into Hospital.	Died.			Invalids sent Home.	Average Daily Sick.	Rate per 1,000 of Strength.				Average Sick time to each Soldier.	Average duration of cases of Sickness.
				At Malta.	Of Invalids.	Total.			Admissions.	Deaths.	Invaliding.	Daily Sick.		
12th Brigade, Royal Artillery	2	995	1,042	16	1	17	40	56.14	1047.2	17.08	40.20	56.42	Days. 20.59	Days. 19.67
Royal Engineers	..	183	191	..	1	1	5	8.34	1043.1	5.49	27.32	45.82	16.63	15.94
28th Foot	..	635	508	4	4	8	36	25.00	800.0	12.60	56.69	39.37	14.36	17.96
42nd "	..	663	634	3	1	4	25	25.72	956.2	6.04	37.71	38.79	14.81	14.81
71st "	..	660	651	3	1	4	17	26.66	986.3	6.06	25.76	40.39	14.74	14.94
74th "	..	642	444	3	1	4	15	26.91	691.5	6.23	23.36	41.92	15.30	22.12
98th "	..	39	43	..	..	..	..	1.00	1102.6	..	..	25.64	9.36	8.49
101st "	..	618	530	6	..	6	11	22.40	857.6	9.71	17.80	36.25	13.23	15.43
Army Service Corps	..	10	6	1	..	1	..	.19	563.4	42.25	42.25	19.15	6.99	12.41
Army Hospital Corps	..	55	29	..	2	2	3	1.17						
Garrison Staff, &c.	..	6	5	..	..	..	..	..	

Malta.

The health of the Royal Artillery was the least favourable of that of any corps in the Command having a considerable strength, its admission, death, and daily sick rates are the highest, its invaliding rate is the second highest, and the average length of time each case of sickness remained under treatment was longer in the Royal Artillery than in any other corps, excepting one. The admissions in the Royal Artillery for dyspepsia are comparatively numerous, as also are those resulting immediately or remotely from accidents; the admissions for fevers are not in so high a rate as that of the 28th Regiment for the same diseases. The mortality in the Royal Artillery was raised by the occurrence of three accidental deaths. It will be noticed that the results of sickness in the 42nd, 71st, and 74th Regiments, are in close accordance; their death rates are almost identical, their daily sick rates are nearly the same, their invaliding rates do not differ importantly.

The sickness and mortality in each class and order of diseases is shown in the following Table :—

Orders.	Diseases.	1875.—Average Strength, 4,506.						1869-74.	
		Admitted into Hospital.	Deaths.			Annual ratio per 1,000 of Strength.		Annual ratio per 1,000 of Strength.	
			In Malta.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	<i>I. General Diseases.</i>								
1	Febrile	692	11	..	11	153·5	2·44	186·3	2·51
2	Constitutional	513	8	6	14	113·8	3·11	79·4	1·57
	<i>II. Local Diseases.</i>								
	<i>Diseases of the—</i>								
1	Nervous System	43	..	1	1	9·5	·22	10·6	·52
2	Eye	146	..	..	..	32·4	..	23·5	..
3	Ear	40	..	..	..	8·9	..	3·7	..
4	Nose	2	..	..	..	·4	..	·7	..
5	Circulatory System	80	8	2	10	17·8	2·22	10·4	1·36
6	Absorbent	28	..	..	..	6·2	..	4·6	..
7	Ductless Glands .. ..	..	..	..	..	..	..	..	..
8	Respiratory System	251	4	2	6	55·7	1·33	41·3	·90
9	Digestive	847	..	..	..	188·0	..	136·9	1·01
10	Urinary	232	..	..	..	51·5	..	39·1	·17
11	Generative	41	..	..	..	9·1	..	13·2	..
12	Organs of Locomotion.. ..	30	..	..	..	6·7	..	5·1	·07
13	Cellular Tissue.. ..	159	..	..	..	35·3	..	27·3	·11
14	Cutaneous System	345	..	..	..	76·6	..	62·6	..
	<i>III. Conditions, &c.</i>								
	Debility.. ..	76	..	..	..	16·9	..	9·5	..
	<i>IV. Poisons</i>	14	1	..	1	3·1	·22	12·7	·28
	<i>V. Injuries.</i>								
2	Accidental	535	4	..	4	118·7	·89	97·5	·59
3	Homicidal .. ..	..	..	..	..	..	..	..	·04
4	Self-inflicted	2	..	..	..	·4	..	·7	·35
5	Judicial.. ..	..	..	..	..	..	..	..	..
	<i>VI. Surgical Operations</i>	..	..	..	..	..	..	·2	·07
	No appreciable disease.. ..	7	..	..	..	1·6	..	1·3	..
	Total	4,083	36	11	47	906·1	10·43	771·6	9·55
	Average of 10 Years, } 1865-74 .. .. }	..	..	..	..	828·4	14·24	..	..

GENERAL DISEASES.—The prevalence of diseases in this class was a little less than in the preceding year; in those of the *febrile group* there is a decrease, amounting to 63·9 per 1,000 men, whilst there is an increase of 32·4 per 1,000 in diseases of the *constitutional group*; the rate of mortality in the whole class is nearly double that of 1874, the increase occurs in both groups, but is greatest in that of constitutional diseases.

The admissions and deaths from the principal diseases in the class, are shown in the following Table:—

General Diseases.	1875.		Annual Ratio per 1000 of Strength.			
	Admitted.	Died.	1875.		1869-74.	
			Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>						
Eruptive Fevers	1	..	2	..	3·5	·42
Continued „	634	11	140·7	2·44	170·9	1·88
Paroxysmal „	86	..	8·0	..	7·4	·17
Influenza	1	..	2	..	1·9	..
Erysipelas	18	..	4·0	..	1·8	..
Other diseases of this group	2	..	4	..	8	·04
Total of Febrile Group. . .	692	11	153·5	2·44	186·3	2·51
<i>Constitutional—</i>						
Rheumatism	279	..	61·9	..	49·9	..
Syphilis	176	..	39·0	..	18·3	..
Scrofula, Phthisis, &c.	52	11	11·5	2·44	9·4	1·39
Scurvy and Purpura .. .. .	..	..	..	..	3	·04
Anæmia	3	..	7	..	1·0	..
Other diseases of this group	3	3	7	·67	4	·14
Total of Constitutional Group. .	513	14	113·8	3·11	79·3	1·57

Eruptive Fevers.—The admission in this group was that of a man of the Royal Artillery for small-pox.

Continued Fevers.—The prevalence of fevers of this nature was materially less than in the preceding year, but the mortality due to them was greater. *Enteric fever*, caused 25 admissions and 11 deaths; admissions from this disease are returned by every corps which served in the Command throughout the year, except the Royal Engineers; the greatest relative prevalence was in the 71st and in the 101st Regiments; in the first-named, a majority of the men were attacked when residing in Lower St. Elmo Barracks, one attack is stated to have originated at Ricasoli, and two at Pembroke Camp; the 101st was quartered at Fort Verdala, Lower St. Elmo, and a Company of the Regiment at Zabbar Gate, but it is not noted from what barracks the enteric fever cases were received. Admissions for enteric fever occurred throughout the year, but the greatest prevalence of the disease was in autumn. The ages and periods of residence in the Command of those attacked are not given, but from a consideration of the ages in the fatal cases, and of the fact that the disease prevailed disproportionately in two of the most recently-arrived regiments, it may be inferred that in Malta—as elsewhere—enteric fever chiefly attacked young men, newly arrived.

Simple Continued Fever.—The admissions for this disease were 205, the greatest comparative prevalence was in the 42nd, and in the 101st Regiments, the least in the 71st Regiment. The Principal Medical Officer remarks, that much of the “fever” which prevails in the hot season is consequent on the enforced confinement of the men in their barrack-rooms, from sunrise to

Malta.

sunset, and he is of opinion that a more suitable headdress than that now worn by the men, would obviate the necessity for the continuous and lengthened occupation of their quarters, during the day, in the hot weather.

Febricula.—There were 404 admissions on account of this disease, which prevailed more during the second and third quarters of the year than in the others.

Paroxysmal Fevers.—Of the 36 admissions returned under this head, 4 were due to ague, and 32 to remittent fever, from which latter disease 10 admissions occurred in the 71st Regiment; respecting them the Medical Officer writes, "Remittent fever, 10 admissions; 2 were changed to enteric fever; the remaining 8 were on an average 31 days under treatment, and were probably "all cases of enteric fever." Five admissions for remittent fever are returned by the 42nd Regiment, the Medical Officer states that they were relapses of West African fever, caused usually by chill, and that they were not severe.

Erysipelas.—The rate of prevalence of this disease is fractionally higher than that of the preceding year, more cases of it occurred in the Royal Artillery, the 28th, and 74th Regiments, than in the other corps, but no corps had complete exemption.

Rheumatism.—The rate of admissions for this disease is nearly one-sixth higher than that of 1874; respecting one of the presumed causes of rheumatism, the Principal Medical Officer remarks, that the barrack-rooms are without fireplaces, and are cold, damp, and draughty in winter.

Syphilis.—The rate of admissions for this disease is more than twice as high as the corresponding rate of the preceding year.

Scrofula, Phthisis, &c.—The rates of admissions and of deaths exceed those of the preceding year, and also those of the average of six years. The causes conducing to the increased prevalence of the diseases in question are not specially adverted to in the reports; the admissions were fewest in the Royal Engineers, the 71st and 74th Regiments, in the remaining corps, the comparative prevalence was about the same.

Other Diseases.—Of illnesses grouped under this heading, two were admissions for cancer, and one was for pyæmia, consequent on an abscess in the hand.

LOCAL DISEASES.—*Diseases of the Nervous System*, were a little less prevalent than in 1874; the largest number of admissions from any disease in this order, was 18 for neuralgia.

Diseases of the Eye.—The admissions are in the same rate as in the preceding year.

Diseases of the Circulatory System.—A slight decrease in the rate of admissions is accompanied by an increase in that of mortality. Nearly two-thirds of the admissions were on account of palpitation, a disease which prevailed disproportionately in the Royal Artillery, and in the 42nd Regiment, and nearly in the same proportion in both corps; the Royal Engineers return no admissions for palpitation; the 28th, the 74th, and the 101st Regiments each return three admissions.

Diseases of the Respiratory System.—The rate of admissions is one-fifth higher than that of 1874, and the rate of deaths is also higher. The greatest comparative prevalence of diseases in this order was in the 42nd Regiment, and in the Royal Artillery, the least was in the 101st Regiment.

Diseases of the Digestive System.—The prevalence of diseases of this order was a little less than in 1874; no attack was fatal.

Diseases of the Urinary System.—The rate of admissions exceeds that of the preceding year by 17·2 per 1,000 men.

Diseases of the Cutaneous System.—The rate of admissions exceeds that of the preceding year by 16·5 per 1,000; the prevalence of diseases in this order was greatest in the 42nd, 71st, and 101st Regiments.

INJURIES.—*Accidental.*—A slightly higher rate of admissions than that of 1874, is accompanied by a death rate exceeding that of the average of six years; the deaths in this order were due to injury of the brain (3), and to multiple injury (1).

ROYAL MALTA FENCIBLE ARTILLERY.

The average annual strength of the non-commissioned officers and men of this corps was 324, the admissions into hospital were 251, the deaths were 3, giving an admission rate of 774.7, and a death rate of 9.27 per 1,000 of the strength; the first rate is almost the same, the last is 6.36 per 1,000 higher than the corresponding one of last year.

The following Table shows the admissions and deaths in the various classes and orders of diseases:—

Orders.	Average Strength	Royal Malta Fencible Artillery.						English Troops at Malta in 1875.	
		324		Annual Ratio per 1,000 of strength.				Annual Ratio per 1,000 of strength.	
				1875.		1869-74.			
		Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I. General Diseases.									
1	Febrile Group	20	..	61.7	..	60.5	1.65	153.5	2.44
2	Constitutional Group ..	32	..	98.7	..	81.3	.99	113.8	3.11
II. Local Diseases.									
Diseases of the—									
1	Nervous System	3	..	9.3	..	11.6	.99	9.5	.22
2	Eye	43	..	132.7	..	127.6	..	32.4	..
3	Ear .. ..	..	..	..	..	3.0	..	8.9	..
4	Nose .. ..	..	..	..	..	.7	..	.4	..
5	Circulatory System ..	6	1	18.5	3.09	3.6	.33	17.8	2.22
6	Absorbent	3	..	9.3	..	5.0	..	6.2	..
8	Respiratory System..	11	..	34.0	..	57.8	..	55.7	1.33
9	Digestive	30	1	92.6	3.09	172.5	1.32	188.0	..
10	Urinary	21	..	64.8	..	58.7	..	51.5	..
11	Generative	4	..	12.3	..	8.6	.33	9.1	..
12	Organs of Locomotion ..	1	..	3.1	..	2.6	..	6.7	..
13	Cellular Tissue	4	..	12.3	..	37.5	..	35.3	..
14	Cutaneous System ..	38	..	117.3	..	104.4	..	76.6	..
III. Conditions.									
	Debility .. ..	..	..	..	..	2.0	..	16.9	..
IV. Poisons.									
V. Injuries.									
2	Accidental	33	..	101.9	..	47.9	..	118.7	.80
3	Homicidal	2	1	6.2	3.09	..	..	..	..
4	Self-inflicted .. ..	..	..	..	..	.3	..	.4	..
	No Appreciable Disease ..	..	..	..	..	.7	..	1.6	..
	Total	251	3	774.7	9.27	787.3	5.61	906.1	10.43
	Average of 10 years, 1865-74	..	..	812.8	8.34	..	..	..	..

GENERAL DISEASES, were more prevalent than in 1874, the excess being in the febrile group; the rate of prevalence in the constitutional, is the same in both years.

LOCAL DISEASES.—*Diseases of the Eye.*—The rate of admissions is lower than that of the preceding year, but it will be noticed that the proportional prevalence of diseases of this kind is four-fold greater than that of the English

Malta

corps in the Command; the Medical Officer states that the greater part of the admissions were those of men who suffered from conjunctivitis, as a result of granular eyelids.

Diseases of the Circulatory System, are in a higher rate of prevalence than that of the preceding year; one man died from aneurism of the aorta.

Diseases of the Digestive System.—The rate of admissions is 25 per 1,000 lower than that of the preceding year. The fatal case in this order is returned under the head of jaundice; amongst the symptoms of the illness was epistaxis; on the examination of the body after death the liver was found to be much enlarged, and the mucous coat of the stomach was congested, soft, and easily separable from the muscular coat.

Diseases of the Urinary System.—The rate of admissions is more than double that of the preceding year.

INJURIES.—*Homicidal*.—Of the two admissions in this order, one resulting from a stab with a knife was fatal; the case is interesting in connection with the conditions found after death. "Gunner —, 24 years of age, 6 years' service, a man of strong constitution, good habits, who had never suffered from any serious disease, and had never been subject to dyspnoea, was stabbed * * * between the 10th and 11th ribs of the left side." On admission he did not present any symptom of wounded lung. After death, the appearances noted were: "right lung normal, left lung reduced to half its volume, its texture very thick; the lower half of the left pleural cavity was occupied by a large portion of the stomach which protruded into it through a congenital tendinous opening in the left side of the diaphragm." The left lung was unwounded; the knife with which the man was stabbed, had entered the left pleural cavity, perforated the diaphragm, and had made a deep wound in the spleen. Blood and serum were effused into the abdominal cavity.

INVALIDS.—23, or in the rate of 70·99 per 1,000, were discharged the service as invalids. The average number constantly sick was 9·66, being in the rate of 29·81 per 1,000 men.

Officers.

The annual average strength of the officers serving in the Malta Command, in 1875, was 226, of whom 130 were placed on the sick report, 2 died, and 13 were invalided to England; the rates per 1,000 of the strength represented by these numbers are, for cases of sickness, 575·2; for deaths, 8·85; and for invaliding 57·52.

Of the cases of sickness, 36 were due to diseases of the febrile order, they included 2 for *enteric fever*, and 16 for *simple continued fever*; one attack of the first-named disease proved fatal; the other death was that of an officer invalided on account of ulcer of the tongue.

Women.

The average annual strength of the wives of soldiers was 422; the cases of sickness amongst them were 263; the deaths were 2; the rates per 1,000 of the strength represented by these numbers are—for cases of sickness 623·2, and for deaths 4·74.

Two women suffered from *enteric fever*, and one from *cerebro-spinal fever*; one of the deaths was due to the last-named disease, the other to consumption.

Children.

The average annual strength of the children of the non-commissioned officers and men in the Command, was 824 amongst whom there were 611 cases of sickness and 44 deaths, being in the proportions of 741·5, and of 53·40 per 1,000 of the strength respectively. For comparison, it may be useful to note that the death rate of persons between the ages of 0 and 15 in England is 27·2 per 1,000.

Of the cases of sickness, 96 were due to the diseases of the *febrile group*; eruptive fevers in 15 instances; only one case of *enteric fever*, is returned; *simple continued fever*, and *febricula*, together, there were 35 cases; of *remittent fever*, 14,—one attack of the latter disease was fatal. 27 cases of *diphtheria* are

returned, of which 5 were fatal (one death is also returned as due to sore throat). There were 9 cases of diseases in the *constitutional* group; one of tubercular meningitis, and one of anæmia, were fatal. *Malta*

There were 10 cases of diseases of the *nervous system*; one of meningitis, and 3 of convulsions, were fatal.

Diseases of the Eye, gave relatively numerous cases, those from conjunctivitis in various degrees of severity, were 165 in number, being in the proportion of 200 per 1,000 of the strength.

Diseases of the Digestive System. In this order 97 cases of illness from diarrhoea are returned, 12 of them (being in the proportion of 14·56 per 1,000 of the strength) were fatal; the great mortality from this particular disease may have relation to the fact of the prevalence of enteric fever in the Command.

Teething, is returned as the cause of 3, and *general debility*, as that of 7 deaths.

SANITARY REPORT.

Surgeon-General Fraser, C.B., reports:—

“The great fundamental sanitary defects in Valletta, and the three cities within the lines of fortification, are their unsatisfactory drainage, with the inadequate supply of water for cleansing or flushing purposes.

“An additional defect in the system is, that all the numerous outlets open into the various harbours and inlets, or narrow creeks, until the water has become polluted from the long accumulation and sediment, there being no tidal current to carry this out to sea. I have to state, however, that a main sewer-pipe is now being laid to receive the sewage of the three cities on the south side, with its outlet into deep sea water, at a point a considerable distance to the east of Fort Ricasoli, which, I understand, will be completed by October 1877. It is afterwards intended to join on a main sewer from Valletta and Floriana, to be executed at the joint expense of the Imperial and Local Governments. The harbours will thus be relieved of these nuisances, specially offensive during the still air and water of the summer months, and evils resulting from the present saturation of the subsoil, consequent on the porous nature of the stone of which these enormous drains are constructed, will be removed.

The general condition of the barracks is as good, upon the whole, as the construction of casemated structures—in some instances not originally (as Floriana) intended for occupation—will admit of. The introduction of fire-places into all barrack rooms, with an allowance of fuel during the winter months, such as is granted to the guard rooms, would be a great benefit, contributing to the comfort and health of the inmates.

There are still some dilapidated wooden (Crimean) huts in the Floriana Notre Dame Ravelin, also in St. James's Ravelin and the adjacent Horn and Crown works, generally occupied either by married families or a company of a regiment. Such temporary structures should be replaced by proper barrack accommodation, similar to the good married quarters in both ravelins.

Space of men in barracks.—Very little alteration has been made in this important matter since the publication of the Report of the Sanitary Commission on Barracks and Hospitals in 1863. There is still some overcrowding for such a climate, especially in the hot months; the floor accommodation in some instances being as low as 40 superficial feet per bed, seldom rising to 60 or 70 square feet, lower than which it should never be in this climate, in so confined a garrison, it is therefore found to be absolutely necessary to encamp a portion of the troops at night during the hot months, as a sanitary measure conducive to comfort and health.

The Ventilation of all the barracks has been very much improved by the insertion of inlets and outlets in the walls or roofs, the enlargement of windows or loopholes, affording increased light as well as ventilation. Gas has also been introduced into several barracks, and some of the married quarters. External as well as internal ventilation is very imperfect in some of the barracks, from their position and structural conformation.

Malta.

Drainage.—Reference has been already made to the very defective drainage of the towns into which that of the barracks necessarily falls, and also to the totally disproportionate amount of water to the excessive dimensions of the drains cut out of the porous sandstone rock. All the barracks are now provided with good remodelled water latrines and slate or earthenware urinals, flushed out and cleansed twice or thrice a-day by either fresh or salt water, pumped into cisterns for that purpose. They are connected with the town sewers by glazed earthenware pipes. The old Malta trough of soft porous stone is almost completely abolished.

Water Supply for the barracks, is either rain water collected into tanks, or conveyed into them by the two grand aqueducts from the hill springs. It is generally good and sufficient, though limited in supply. It is not continuously laid on by pressure, but pumped by fatigue parties into cisterns for cook-houses, ablution rooms, and latrines, &c. In some barracks it is passed through a filter before it is used. The barrack rooms and married quarters are also provided with dripstones for drinking water. I purpose recommending that all tanks should undergo careful periodical cleansing at the end of the dry season, and that the water of each tank should be filtered on a general system, both before it enters the tank, and before it is used for drinking; that in the event of the overflow pipe of any cistern used for drinking or cooking in a barrack, quarter, or hospital, communicating with sewage drains, it should be disconnected; and that all sinks or baths within houses, or hospitals, or barracks, should be similarly disconnected by air; and also that all water closets soil pipes should be ventilated below the syphon by a tube into the outer air, to a point above windows.

The Cookhouses are in good condition, and, in nearly all cases, provided with steel ovens, and boilers, though Warren's Cooking Apparatus is now in general use.

The Ablution and Bath accommodation is very good in all the barracks, being provided either with fixed or moveable basins, and baths with sufficient water laid on, by pumping. At Pembroke Camp, however, salt water is laid on, and men have to carry water for ablution from the tank pump.

All the barracks are now provided either with new or remodelled married quarters, having good washhouses, with fixed or moveable tubs, and water generally laid on from cisterns and pumps; also water latrines and ablution rooms. The "Camerata" married quarters, near the general hospital, is occupied by the families of the Royal Artillery, the Regiment in Lower St. Elmo Barracks, and the Malta Fencibles. Each house has a drained soil pipe, washed out by hand. There is a general laundry and washhouse sufficiently supplied with water in the usual way.

There is now an admirable *Gymnasium*, both in the Cottonera and Valletta sides, with very satisfactory results, as to the general physical development especially of young soldiers. Accidents are rare.

All the barracks are provided with reading and recreation rooms, school-rooms, generally well lighted and ventilated.

The new *Military Prison* appears to be in good sanitary condition, excepting the dry earth latrines, which are to be altered in compliance with the recommendations of a late Commission of Inquiry, called for by the numerous cases of enteric fever admitted into hospital.

The *Cottonera Hospital* is admirable in all its arrangements, and wants only separate accommodation for infectious diseases, and also a hot air disinfecting room to make it complete.

Forrest Hospital is on a good site, and with some improvements would be made a good hospital.

Valletta Hospital has undergone certain improvements from time to time. It presents ample accommodation, but it appears to me that whatever is done, it will never be other than a bad hospital. It is the oldest building in Valletta, having been the Hospitium of the Knights. From its defective construction, its complicated and irregular arrangements, its bad drainage—one main town sewer passing under it, and two others at either end; from its low site, filthy neighbourhood, defective external ventilation, obstructed on three sides by higher buildings, being only opened on the south to the sea, where the outlets of the above drains eject their contents, I am

decidedly of opinion that it is absolutely necessary to erect a new hospital, on *Malta*. some other site, for the sick of the Valletta and Floriana garrisons, similar to that on the Cottonera side."

Attached to Surgeon-General Fraser's Report is a list of the leading sanitary improvements effected in the course of the year, furnished by the Commanding Royal Engineer.

Section II.

On the extent of Invaliding among the Troops serving in the Mediterranean.

The number of invalids (non-commissioned officers and men) sent home *Mediterranean* from Gibraltar was 105, and from Malta 152, being in the rate of 22·50 of those of the first, and of 33·73 per 1,000 men of those of the last Command. During the year 58 invalids from Gibraltar, being 12·29 per 1,000 of the strength of the Command, and 85 invalids from Malta, being 18·86 per 1,000 of the strength, were finally discharged the service at Netley.

The classes and orders of the diseases of the invalids, are shown in the following Table:—

Orders.	Diseases.	Invalids sent home from			Invalids discharged at Netley from		
		Gibraltar.	Malta.	Total.	Gibraltar.	Malta.	Total.
I. General Diseases.							
1	Febrile Group	3	3	6	..	..	..
2	Constitutional „	43	48	91	23	35	58
II. Local Diseases.							
Diseases of the—							
1	Nervous System	9	11	20	4	2	6
2	Eye	2	8	10	1	2	3
3	Ear .. ..	..	2	2	..	2	2
5	Circulatory System	15	22	37	15	20	35
7	Absorbent „ .. ..	..	1	1	..	..	..
8	Respiratory „	3	17	20	2	4	6
9	Digestive „	4	11	15	1	9	10
10	Urinary „	4	5	9	2	1	3
11	Generative „	1	..	1	..	..	..
12	Organs of Locomotion	3	2	5	1	2	3
13	Cellular Tissue .. ..	..	..	..	..	2	2
14	Cutaneous System	1	..	1	1	..	1
III. Conditions, &c.							
	Debility	14	21	35	5	6	11
V. Injuries.							
	Accidental.. ..	3	1	4	3	..	3
	Total	105	152	257	58	85	143
	Ratio per 1,000 of Mean { 1875 ..	22·25	33·73	28·04	12·29	18·86	15·60
	Strength { 1865-74	29·49	24·92	27·10	18·76	16·57	17·61

The proportion of invalids sent home from Gibraltar is a little lower than in the preceding year; whilst that of invalids, finally discharged the service, is nearly the same in both years. The proportion of invalids sent from Malta exceeds that of the preceding year by 4·94 per 1,000 of the strength, but the proportion of invalids from the Command finally discharged the service, is lower by 3·2 per 1,000.

Section III.

*Mean Daily Sick.**Mediterranean*

The average number of non-commissioned officers and men constantly sick in Gibraltar was 181, and in Malta 194·32, being in the annual rates of 38·36, and of 43·12 per 1,000 of the strength respectively; both are higher than the corresponding rates of the preceding year, the first considerably so.

The usual information calculated from these numbers is given in the following Table :

		Gibraltar.	Malta, exclusive of Royal Malta Fencibles.
Average Strength in 1875 ..	..	4,719	4,506
Average constantly sick ..	..	181	194
Ratio per 1,000 con- stantly sick	{ 1875 .. 1865-74..	38·36 32·61	42·21 41·66
Average sick time to each Soldier	{ 1875 .. 1865-74..	14·00 11·90	15·42 15·20
Average duration of the cases	{ 1875 .. 1865-74..	22·55 18·13	17·34 18·35

In all the three particulars, in Gibraltar, the results are considerably less favourable than in the preceding year, more men were constantly sick, the sick time to each soldier was greater, and the average duration of each case of sickness was longer.

Section IV.

Influence of the Age on Mortality.

The following Table shows the relation of age to mortality in the Troops serving in the Mediterranean Command :—

		Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and upwards.
Mediterranean Command.	{ 1875	Average Strength ..	1,018	3,382	2,271	1,101	1,038
		Died	2	22	15	13	12
		Ratio per 1,000 of Strength ..	1·97	6·51	6·61	11·80	11·56
	{ 1865-74	Do. Do. ..	3·04	6·28	14·28	14·38	22·22

IV.—ON THE HEALTH OF THE TROOPS SERVING IN THE DOMINION OF CANADA.

Section I.

Sickness and Mortality.

STATISTICAL REPORT.

THE troops in this Command were stationed at Halifax: no change took place in the composition of the force, other than that due to the substitution of one detachment of Royal Engineers from Bermuda, by another, and to the replacement of time-expired men, invalids, &c., by drafts from home, amounting in the aggregate to 323 non-commissioned officers and men. The average annual strength of the troops was 1,684; the admissions into hospital were 1,109; the deaths (including that of an invalid) were 15; the rates given by these numbers are, for admissions, 658·6, and for deaths, 8·90 per 100 of the mean annual strength; both exceed the corresponding rates of the preceding year, that of deaths, by 2·90 per 1000.

Certain particulars of the results of sickness in each of the Corps serving in the Command, are contrasted in the following Table:—

Corps.	Completed years of Service in the Command.	Annual Average Strength.	Admitted into Hospital.	Died.	Invalided.	Average Daily Sick.	Rate per 1,000 of Strength.				Average Sick time to each man.	Average duration of cases of Sickness.
							Admitted.	Died.	Invalided.	Constantly Sick.		
3rd Brigade Royal Artillery ...	2	319	203	4	11	12·61	636·4	12·54	34·48	39·53	Days. 14·42	Days. 22·72
Royal Engineers... ..	...	97	53	1	1	2·46	546·4	10·31	10·31	25·36	9·26	16·94
1st Battalion 60th Foot ...	8	620	347	4	12	14·87	539·7	6·45	19·36	23·98	8·75	15·64
87th Foot	3	616	499	6	12	23·96	510·1	9·74	19·48	38·90	14·20	17·63
Army Service Corps ... ..	...	11	2	}	...	...	300·0	...	...	...	...	...
Army Hospital Corps ... ..	...	17	6									
Garrison Staff ... ..	...	2	1									

As was also the case in the preceding year, the results of sickness of the 87th Regiment compare unfavourably with those of the 1st Battalion 60th; the diseases to which the excess of sickness in the first-named Corps was chiefly due, were influenza, bronchitis, and those resulting from injuries.

The following Table shows the admissions and deaths from the different classes and orders of diseases:—

*Dominion of
Canada.*

Orders.	Diseases.	Strength, 1,684.				1875.		1869-74.	
		Admissions.	Deaths.			Annual Ratio per 1,000.		Annual Ratio per 1,000.	
			In Dominion of Canada.	Of Invalids.	Total.	Admissions.	Deaths.	Admissions.	Deaths.
	<i>I. General Diseases.</i>								
1	Febrile Group ..	85	..	..	..	50·5	..	37·9	·57
2	Constitutional „ ..	133	..	..	..	79·0	..	110·4	1·38
	<i>II. Local Diseases.</i>								
	<i>Diseases of the—</i>								
1	Nervous system ..	14	1	..	1	8·3	·59	9·6	·76
2	Eye	32	..	..	..	19·0	..	14·0	..
3	Ear	8	..	..	..	4·7	..	2·9	..
4	Nose	2	..	..	..	1·2	..	·5	..
5	Circulatory system ..	39	2	..	2	23·2	1·19	7·3	1·38
6	Absorbent „ ..	26	..	..	..	15·4	..	14·4	..
7	Ductless Glands ..	..	..	..	..	..	..	·1	..
8	Respiratory system ..	182	5	1	6	108·1	3·56	71·5	1·62
9	Digestive „ ..	193	2	..	2	114·6	1·19	79·3	·33
10	Urinary „ ..	54	..	..	..	32·1	..	75·1	·29
11	Generative „ ..	7	..	..	..	4·2	..	10·2	..
12	Organs of Locomotion ..	10	..	..	..	5·9	..	4·2	·09
13	Cellular Tissue ..	34	..	..	..	20·2	..	20·1	·05
14	Cutaneous system ..	71	..	..	..	42·2	..	51·6	·05
	<i>III. Conditions, &c.</i>								
	Debility	1	..	..	..	·6	..	4·4	..
	<i>IV. Poisons</i>	11	2	..	2	6·5	1·19	8·8	·33
	<i>V. Injuries.</i>								
2	Accidental	206	1	..	1	122·3	·59	86·6	·81
3	Homicidal .. ..	..	..	..	..	..	..	·1	·09
4	Self-inflicted .. ..	..	1	..	1	..	·59	·2	·48
	<i>VI. Surgical Operations</i>	1	..	..	..	·6	..	·3	·05
	No appreciable disease ..	..	..	..	..	..	..	·7	..
	Total	1,109	14	1	15	658·6	8·90	610·2	8·28
	Average of 10 years, 1865-74.. ..	..	..	..	..	642·3	9·19	..	..

GENERAL DISEASES.—The rate of admissions slightly exceeds that of 1874 the increase being in the *febrile* group.

The following Table shows the admissions and deaths from the principal diseases in this class :—

Diseases.	Admitted.	Died.	Ratio per 1,000 of Strength.			
			1875.		1869-74.	
			Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>						
Eruptive Fevers .. .. .	..	..	..	..	2·2	·05
Continued „	23	..	13·7	..	17·5	·38
Paroxysmal „	1	..	·6	..	4·9	..
Cholera .. .. .	..	..	..	..	·1	..
Influenza	50	..	29·7	..	7·9	..
Erysipelas	10	..	5·9	..	4·3	·09
Other Diseases of this group ..	1	..	·6	..	1·0	·05
Total of Febrile Group ..	85	..	50·5	..	37·9	·57
<i>Constitutional—</i>						
Rheumatism	86	..	51·1	..	35·8	..
Syphilis	25	..	14·8	..	67·0	·05
Scrofula, Phthisis, &c. ..	16	..	9·5	..	5·5	1·19
Scurvy and Purpura .. ..	..	..	..	..	·6	..
Anæmia	2	..	1·2	..	·4	..
Other Diseases of this group ..	4	..	2·4	..	1·1	·14
Total of Constitutional Group ..	133	..	79·0	..	110·4	1·38

Eruptive Fevers.—There was no admission from any fever of this nature during the year.

Continued Fevers.—The rate of admissions for continued fevers is lower than that of the preceding year by 4·9 per 1,000.

Influenza.—The rate of admissions for this disease exceeds that of the preceding year by 14·7 per 1,000 men, a result which to a small extent, may have relation to the decreased number of admissions for continued fevers adverted to above, but was chiefly due to the more severe cold experienced in the winter of 1875.

Erysipelas.—The admissions were more numerous than in the preceding year; half of the whole number were those of men of the 87th Regiment.

Rheumatism.—The rate of admissions exceeds the corresponding one of 1874 by 12·7 per 1,000 men.

Syphilis.—The prevalence of this disease was less than in the preceding year, in the proportion of 23 per 1,000 men.

Scrofula, Phthisis, &c.—The admissions are in a fourfold greater rate than in 1874. More admissions on account of these diseases occurred in the 87th than in any other Corps. No death was caused by a disease of this group.

LOCAL DISEASES.—*Diseases of the Nervous System.*—More than half of the admissions in this order were for neuralgia. The death was proximately due to encephalitis, resulting from a nodular tumour apparently of syphilitic origin; it excited inflammation and suppuration in the anterior lobe of the brain.

Diseases of the Eye.—The rate of prevalence was the same as that of last year, there is no material difference in the proportional prevalence of conjunctivitis in the two Infantry Regiments which composed the greatest part of the force.

Diseases of the Circulatory System.—The rate of admissions exceeds that of the preceding year by 8·8. Of the 39 admissions for diseases in this order, 31 were on account of palpitation, the proportional prevalence of which was greatest in the Royal Artillery, and in the 87th Regiment.

Diseases of the Respiratory System.—The rate of admissions for diseases of this order, exceeds that of the preceding year by 27· per 1,000 men, and the rate of deaths is 2·96 per 1,000 higher. The Principal Medical Officer attributes the greater prevalence of affections of the respiratory system during the year, to the unusual cold experienced in winter; one of the deaths returned in this order, though proximately due to congestion of the lungs, was a result of intemperance, and in other fatal cases, though bronchitis, or pneumonia, might be the immediate cause of death, cardiac disease was also present.

Diseases of the Digestive System.—The admissions for diseases in this order, were more numerous than in 1874, tonsillitis being the one most in excess. Both of the deaths were from diseases of unusual occurrence in this Command, one being from dysentery, and the other from disease of the liver, going on to suppurative inflammation, the abscess resulting discharged through the lung. The subjects of these fatal illnesses were both young men, and it does not appear that their previous service had been in tropical countries.

Poisons.—The rate of admissions for diseases in this order (which were all due to intemperance) is double that of the preceding year, and with this the rate of mortality is proportionately increased.

Injuries.—Accidental.—The proportion of admissions for accidental injuries exceeds that of the preceding year by 15·4 per 1,000 men: the death in this order was by gunshot. *Self-Inflicted.*—The death in this order was that of a man of the Royal Engineers, who poisoned himself with cyanide of potassium.

Officers.

In an average annual strength of 88 officers, there were 44 cases of illness, and 2 deaths, being in the annual rates of 500· and of 22·61 per 1,000 of the strength respectively. One of the deaths was due to epilepsy, and the other to valve disease of the heart.

Women.

In an average annual strength of 202 women, there were 67 cases of illness, and 4 deaths, being in the annual rates of 331·6 and 19·80 per 1,000 of the strength respectively. Of the deaths, 2 were due to consumption, one to valve disease of the heart, and one to puerperal fever.

Children.

In an average annual strength of 410 children, there were 120 cases of illness, and 11 deaths, being in the annual rates of 292·7, and 26·83 per 1,000 of the strength respectively. The death rate of children in the Command was thus nearly the same as that (27·22 per 1,000) for those of similar ages in England. No death was due to an eruptive fever; four were caused by diarrhoea.

SANITARY REPORT.

Deputy Surgeon-General Lloyd reports—"The admissions to hospital have been considerably in excess of those of the preceding 12 months, the increase being chiefly due to the long-continued and unusual severity of the weather during the early months of the year.

Sanitary Improvements.—The following improvements have been effected during the year,—viz, the light and ventilation of some of the casemates in the citadel have been improved.

Married Quarters.—Additional quarters for two staff serjeants and sixteen married soldiers have been erected in the Pavilion Barracks.

New Fire Grates in Wellington Barracks.—The old pattern grates in Wellington Barracks so much complained of last year, have been removed, and new ones, on an improved principle, have been substituted.

Sanitary Defects.—As regards the principal sanitary defects, and the most prominent requirements, I need not again enumerate them; they are the same as detailed in my reports for the previous four years.

Clothing and Diet—No change has been made in the dress during the year. *Dominion of Canada.* On the subject of diet, two of the Medical Officers of the garrison refer to the long interval from dinner to breakfast, and recommend a more substantial meal for supper, in which I fully concur. From several years experience of the climate of Canada, I am convinced that some addition to the meat ration is absolutely requisite in the dieting of the Troops."

Section II.

On the Extent of Invaliding.

Thirty-three invalids were sent to England, and 23 were finally discharged the Service (3 in Canada, and 19 at Netley) during the year; the proportion to the strength given by the first-named is 19·60 per 1,000, being a little lower than that of the preceding year.

The diseases which necessitated invaliding are shown in the following Table :—

Disabilities.	Invalids sent home from Canada.	Invalids Discharged the Service	
		In Canada.	At Netley.
Chronic Rheumatism	1	..	..
" Gout	1	..	..
Secondary Syphilis	5	..	..
Phthisis Pulmonalis	6	..	7
Fibro Plastic Tumour	1	..	..
Epilepsy	1	..	..
Dementia	1	..	..
Conjunctivitis	1	..	1
Short Sight .. .. .	..	..	1
Iritis	1	..	..
Valve Disease of Heart	2	..	5
Palpitation	3	..	..
Bronchitis	3	..	..
Asthma	2	..	2
Congestion of Lungs	1	..	..
Jaundice .. .. .	..	1	..
Hernia .. .. .	..	..	1
Gonorrhœa	1	..	..
General Debility .. .. .	..	..	1
Fracture	1	1	..
Wounds .. .. .	..	1	..
Sprain	1	..	..
Amputation of Foot	1	..	1
Total	33	3	19
Ratio per 1,000 of { 1875	19·60	1·78	11·28
Mean strength.. { 1865-74	16·43	2·65	10·93

Section III.

Mean Daily Sick.

The average number constantly sick, during the year, was 54·17, being in the rate of 30·40 per 1,000 of the strength, a fractional increase on the rate of the preceding year.

ominion of
anada.

The usual information, calculated from these numbers, is given in the following Table :—

	1875.	1865-74.
Ratio per 1,000 of strength constantly sick ..	30·40	30·75
	days.	days.
Average sick time to each soldier	11·10	11·22
Average duration of the cases of sickness ..	16·85	17·47

The average sick time to each soldier is fractionally greater than in 1874, but the average duration of each case of sickness was fractionally less.

Section IV.

On the Influence of Age on the Mortality.

The following Table shows the death rates at the several ages, arranged in quinquennial periods :—

	Under 20 Years.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and upwards.
Ratio of deaths per 1,000 of the mean strength { 1875	13·51	2·84	4·71	22·04	22·35	18·54
{ 1865-74	4·91	4·83	8·78	11·60	17·93	23·99

V.—ON THE HEALTH OF THE TROOPS SERVING IN BERMUDA.

Section I.

Sickness and Mortality.

STATISTICAL REPORT.

THE Corps serving in the Command in 1875 are shown in the following table; their annual average strength was 1,902; the admissions into hospital were 1,144; the deaths, including those of three invalids who died on the way home, were 21, giving a proportion for admissions, of 601·4, and for deaths, of 11·05 per 1,000 of the mean strength; both exceed the corresponding proportions of the preceding year.

Bermuda.

Corps.	Year of completed Residence in the Command.	Average Annual Strength.	Admissions into Hospital.	Deaths.	Invalids sent Home.	Average daily Sick.	Ratio per 1,000.				Average Sick-time to each Man.	Average Duration of Cases.
							Admissions.	Deaths.	Invalids sent Home.	Daily Sick.		
Royal Artillery, 7th Brig. 3rd and 4th Batteries...	3	200	92	3	8	5·67	460·0	15·00	40·0	28·3	Days. 10·35	Days. 21·50
Royal Engineers... ..	...	383	249	4	9	13·28	650·1	10·44	23·0	34·7	12·66	19·47
1st Battalion 20th Foot	2	637	365	7	18	26·04	573·0	10·99	28·3	40·9	14·92	26·04
" 53rd "	...	22	2	...	...	...	90·0	...	...	...	...	...
" 97th "	...	600	407	5	3	16·90	668·3	8·21	4·9	27·7	10·13	15·11
Army Service Corps ...	...	35	23	1	...	·92	568·6	39·22	...	20·0	7·30	12·84
Army Hospital Corps ...	...	16	6	1	...	·10						

The changes in the composition of the force serving in the Command, (other than those due to the replacement of time-expired men and invalids, by draft from home), were the arrival of the 97th Foot, on the 9th of January, from the West Indies, and the departure of the 53rd Foot, for England, on the 16th of the same month.

The following table shows the admissions and the deaths in the different classes and orders of diseases :—

Bermuda.

Orders.	Diseases.	1875. Average Strength, 1,902.						1869-74.	
		Admitted into Hospital.	Deaths.			Annual ratio per 1,000 of Strength.		Annual ratio per 1,000 of Strength.	
			At Bermuda.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	<i>I. General Diseases.</i>								
1	Febrile Group ..	103	2	..	2	54·2	1·05	80·7	2·57
2	Constitutional „ ..	152	1	3	4	79·9	2·11	76·2	2·13
	<i>II. Local Diseases.</i>								
	Diseases of the—								
1	Nervous system ..	14	2	..	2	7·4	1·05	10·7	1·33
2	Eye	40	..	..	..	21·0	..	20·4	..
3	Ear	14	..	..	..	7·4	..	2·9	..
4	Nose	1	..	..	..	·5	..	2·7	..
5	Circulatory system ..	16	5	..	5	8·4	2·63	8·3	1·51
6	Absorbent „ ..	34	..	..	..	17·9	..	10·9	..
8	Respiratory „ ..	40	..	..	..	21·0	..	38·2	·53
9	Digestive „ ..	283	2	..	2	148·8	1·05	166·6	·89
10	Urinary „ ..	52	1	..	1	27·3	·53	29·4	·28
11	Generative „ ..	15	..	..	..	7·9	..	8·9	..
12	Organs of Locomotion..	9	1	..	1	4·7	·53	2·9	..
13	Cellular Tissue..	51	..	..	..	26·8	..	28·7	·08
14	Cutaneous system ..	88	..	..	..	46·3	..	69·5	·08
	<i>III. Debility</i> ..	6	..	..	..	3·2	..	8·3	..
	<i>IV. Poisons</i> ..	12	..	..	..	6·3	..	22·5	·71
	<i>V. Injuries.</i>								
2	Accidental. „ ..	212	2	..	2	111·4	1·05	112·6	1·42
3	Self-inflicted „ ..	1	2	..	2	·5	1·05	·6	·98
	<i>VI. Surgical Operations..</i>	..	..	..	..	..	..	} ·3	..
	No appreciable disease ..	1	..	..	..	·5	..		
	Total	1,144	18	3	21	601·4	11·05	701·3	12·51
	Average of 10 years 1865-74	..	..	..	..	716·5	15·04*	..	..

* The great difference between this rate and that of the average of 10 years, given in the report of 1874, is due to the omission of the epidemic year of 1864.

GENERAL DISEASES, were more prevalent than in the preceding year, and the increase was in both groups of the class; the mortality in the whole class, as well as in each group, was less than in 1874.

The admissions and deaths, from the principal diseases of this class, are shown in the following table :—

Diseases.	Admitted.	Died.	Ratio per 1,000 of Mean Strength.			
			1875.		1869-74.	
			Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>						
Eruptive Fevers	1	..	5	..	1	..
Continued „	99	2	52.1	1.05	67.7	2.48
Paroxysmal „	2	..	1.1	..	1.4	..
Influenza	1	..	5	..	10.7	..
Erysipelas .. .. .	..	..	..	..	.4	..
Other diseases of this group..	..	..	..	..	.4	.09
Total of Febrile Group	103	2	54.2	1.05	80.7	2.57
<i>Constitutional—</i>						
Rheumatism	66	..	34.7	..	35.7	..
Syphilis	68	..	35.7	..	30.1	.09
Scrofula, Phthisis, &c. ..	11	3	5.8	1.58	9.2	1.95
Anæmia	5	..	2.6	..	.5	..
Other Diseases of this Group ..	2	1	1.1	.53	.7	.09
Total of Constitutional Group ..	152	4	79.9	2.11	76.2	2.13

Eruptive Fevers.—The only admission in this group, was one for scarlet fever.

Continued Fevers.—In this group 99 admissions are returned—viz., for enteric fever 5, for simple continued fever 8, and for febricular 86. The admissions for enteric fever were those of men of the 1st Battalion 20th Foot (3), and of men of the Royal Engineers (2). It is not stated at what period of the year the attacks took place, but in the instance of the fatal case, death occurred in June; two men of the 20th, were attacked at St. George's, and one at Prospect Camp. Most of the admissions for simple continued fever, were those of men of the 97th Foot, but the fatal case was that of a man of the Royal Artillery. The Medical Officer notes that “the lower part of the ileum was much congested,” but the glands were “healthy in appearance.”

Paroxysmal Fevers.—The two admissions in this group of fevers were for *ague*, both occurred in men of the 97th, a regiment which served in the West Indies previously to its arrival in the Command.

Rheumatism.—The rate of admissions for this disease exceeded that of the preceding year.

Syphilis.—The rate of admissions for this disease exceeded that of 1874 by nearly 10 per 1,000.

Scrofula, Phthisis, &c.—The rate of admissions is only half that of 1874, and the mortality is lower in the same proportion; the greatest prevalence of the disease was in the 1st Battalion 20th Foot, in the opinion of the Medical Officer, its comparatively long residence in the Command contributed to this result.

Other Diseases.—One admission for *purpura*, is returned, that of a man of the Royal Engineers, who died from it on his passage home; no remarks respecting the illness occur in the report.

LOCAL DISEASES.—Diseases of the Nervous System.—The rate of admissions, and also that of deaths, is lower than the corresponding rate of 1874; all the admissions in this order excepting three, were on account of *neuralgia*.

Diseases of the Eye.—The rate of admissions is nearly twice that of the preceding year, this result is due to the greater prevalence of conjunctivitis, a

ermuda.

disease of disproportionately frequent occurrence in the 1st Battalion 20th Foot.

Diseases of the Circulatory System.—Neither the rate of prevalence, nor that of mortality, is materially different from the rate of 1874; the admissions on account of palpitation were six in number, four of them being returned by the 1st Battalion 20th Regiment, and two by the Royal Engineers; of the deaths in this order, two were due to valve disease of the heart, and two to aneurism.

Diseases of the Respiratory System.—There is a large decrease in the admissions for diseases in this order on the rate of the preceding year, and no illness was fatal.

Diseases of the Digestive System.—The rate of admissions exceeds that of 1875 by 13 per 1,000; dyspepsia, and diarrhoea, were the diseases which caused the greater number of admissions in this order, the former being relatively most prevalent in the Royal Engineers, and in the Royal Artillery, and least so in the 1st Battalion 20th Foot. The latter disease was most prevalent in the 97th, the regiment newly arrived in the Command. One death from hepatitis took place, suppuration having followed on the inflammatory stage of the disease.

Poisons.—Compared with the preceding year, there is a decrease of 21 per 1,000 in the rate of admissions for diseases in this order. No attack was fatal.

Injuries.—Accidental.—The rate of admissions is nearly the same as that of 1874. One of the two deaths in this order was due to rupture of the diaphragm, caused by a fall into the ditch of one of the forts; the man lived 48 hours after the accident, suffering intense pain, and having uncontrollable vomiting, chiefly of blood; after death, a large rent was discovered in the diaphragm, through this the stomach and spleen had passed into the cavity of the chest, displacing the heart to the right side. The other accidental death was from drowning.

Self-inflicted.—Of the two deaths in this order, one was by gunshot, the other by drowning.

SANITARY REPORT.

Deputy Surgeon-General Grant reports that "the health of the troops has been very good, and there have been no important sanitary defects likely to originate or perpetuate disease in any of the stations in this command.

The barrack accommodation appears to have been ample, and the sanitary condition of the different barracks has been satisfactory, and with the exception of a foul tank attached to the barrack serjeant's quarters at Prospect, which was said to have originated a case of typhoid fever in the family, there has been no complaint in this respect from any of the medical officers."

The following sanitary services were executed during the past year :—

St. George's.—1. Additional tank for storage of water at the Hut barracks. 2. Ventilating the drain from latrines. 3. Altering overflow pipe from cisterns.

Prospect.—1. Providing a swimming bath for the troops. 2. Hospital wards—altering and re-hanging sashes to windows, so as to open outwards. 3. Hospital—additional rain-water tank.

Boaz.—1. Preparing a bathing place for the troops. 2. Additional tank for the storage of rain water.

Section II.

On the Extent of Invaliding.

Thirty-eight invalids were sent home from the Command, and twenty were discharged the service at Netley, during the year. The proportion of invalids sent home is 19·93 per 1,000, which is slightly less than that of the preceding year.

The following Table shows the classes and orders of the diseases to which the invaliding was due :—

Bermuda.

Class.	Order.	Diseases.	Invalids sent home.	Discharged the Service at Netley.
I.	2	Rheumatism	5	1
		Syphilis	2	..
		Phthisis	6	3
		Purpura	1	..
		Diseases of the—		
II.	1	Nervous System	5	1
	2	Eye	2	1
	5	Circulatory System	5	8
	8	Respiratory „	1	1
	9	Digestive „	2	..
	12	Organs of Locomotion	3	..
	13	Cellular Tissue	1	..
	14	Cutaneous System	1	..
III.	..	Debility	1	2
V.	2	Injuries	3	3
		Total	38	20
		Ratio per 1,000 of strength { 1875	19·93	10·52
		1865-74	21·92	14·25

*Section III.**Mean Daily Sick.*

The average number of men in hospital throughout the year was 62·91.

The following Table exhibits certain particulars calculated from the number of constantly sick :—

	1875.	1865-74.
Ratio per 1,000 of strength constantly Sick ..	33·08	35·39
Average Sick time to each Soldier	days. 12·07	12·91
Average duration of each case of Disease ..	20·07	18·27

All the results shewn above are less favourable than those of the preceding year ; the average sick-time to each soldier, and the average duration of each case of sickness, are both nearly two days in excess of the corresponding rates of 1874.

*Section IV.**On the Influence of Age on the Mortality.*

The following Table shews the rates of mortality at the several ages, arranged in quinquennial periods :—

	Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and upwards.
Ratio of deaths per 1,000 of mean strength { 1875	19·23	2·54	3·04	21·74	12·27	41·67
1865-74	3·45	7·68	13·54	21·21	31·34	13·61

VI.—ON THE HEALTH OF THE TROOPS SERVING IN THE WEST INDIES.

Section I.

Sickness and Mortality

STATISTICAL REPORT.

I. WHITE TROOPS.

West Indies Command.

THE average annual strength of the troops in the Command was 1,131; the admissions into hospital amongst them were 953; the deaths, including those of 3 invalids on their way home, or after arrival in England were 10, being in the rates of 842·6, and of 8·84 per 1,000 of the strength respectively. Both rates are lower than the corresponding ones of the preceding year, that of admissions by nearly one quarter, that of deaths by nearly one half. If the results in the Windward and Leeward Islands, and in Jamaica, be taken separately, the admission rate of the first is 73·4 and the death rate is 5·98 per 1,000 of the average annual strength; whilst the admission rate of the last is 835·5, and the death rate is 12·99 per 1,000 of the strength.

The corps which composed the force, and certain of the most important of their health statistics are shown in the following Table.

Corps.	Completed years of service in the Command.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Daily Sick.	Rate per 1,000 of Strength.				Average sick time to each soldier.	Average duration of each case of sickness.	Stations.	
							Admitted.	Died.	Invalided.	Daily Sick.				
Royal Artillery—											days.	days.		Months.
5 Batt., 7th Brig. ...	2	105	98	2	9	3·88	933·3	19·09	85·71	36·95	13·49	14·49	Jamaica ...	... 12
6 " " " ...	2	110	152	...	4	7·94	1381·8	...	36·36	72·18	26·35	13·07	Barbados	... 12
35th Foot ...	...	100	234	...	...	4·45	2340·0	...	...	...	...	...	{ Jamaica, Barbados, and Trinidad.	
98th " ...	2†	778	447	7	11	24·79	574·5	9·	14·14	31·86	11·63	20·24	Do. Do. Do.	
Rl. Engineers, Staff Serjts., and Army Service Corps ...	...	38	22	1	2	...	...	...	...	...	...	...

* Arrived in the Command on the 18th November.

† Left the Command on 23rd November.

In the following Table the admissions and deaths in the different classes and orders of diseases are shown :—

West Indies Command.

Orders.	White Troops.	1875.						1869-74.	
		Strength, 1,131.				Ratio per 1,000.		Ratio per 1,000.	
		Admitted.	Died.			Admitted.	Died.	Admitted.	Died.
			In West Indies.	Of Invalids.	Total.				
	I. General Diseases.								
1	Febrile Group	107	..	..	..	94·6	..	207·8	5·62
2	Constitutional „	144	1	1	2	127·3	1·77	103·6	2·13
	II. Local Diseases.								
	Diseases of the—								
1	Nervous System ..	17	..	..	..	15·0	..	11·1	1·00
2	Eye	9	..	..	..	8·0	..	12·0	..
3	Ear	4	..	..	..	3·5	..	9·5	..
4	Nose .. ..	..	..	..	..	..	..	5	..
5	Circulatory System ..	12	1	..	1	10·6	·88	12·2	1·00
6	Absorbent „ ..	35	..	..	..	30·9	..	20·4	..
7	Ductless Glands ..	..	..	..	..	..	..	2	..
8	Respiratory System ..	48	..	1	1	42·4	·88	31·5	·12
9	Digestive „ ..	173	3	1	4	153·0	3·55	118·1	·25
10	Urinary „ ..	104	..	..	..	92·0	..	103·7	·12
11	Generative „ ..	12	..	..	..	10·6	..	14·0	..
12	Organs of Locomotion ..	12	..	..	..	10·6	..	4·5	..
13	Cellular Tissue ..	32	..	..	..	28·3	..	26·5	..
14	Cutaneous System ..	88	..	..	..	77·8	..	85·0	..
	III. Conditions, &c.								
	Debility	13	..	..	..	11·5	..	10·0	·12
	IV. Poisons ..	13	1	..	1	11·5	·88	22·1	·63
	V. Injuries.								
2	Accidental	130	1	..	1	115·0	·88	124·3	·75
4	Self-inflicted .. ..	..	..	..	..	..	..	4	·25
	VI. Surgical Operations.. ..	..	..	..	..	..	..	2	..
	No appreciable disease .. ..	..	..	..	..	..	..	1·3	..
	Total.. ..	953	7	3	10	842·6	8·84	918·9	11·99
	Average of 10 years 1865-74 .. ..	..	..	..	..	1044·9	17·50	..	..

GENERAL DISEASES.—The rate of admissions is less than the half, and the rate of deaths is little more than one-fifth of the corresponding rate *febrile* preceding year; nearly the whole of the reduced prevalence was in the of the group of diseases; the rate of prevalence of diseases of the *constitutional* group did not differ materially in the two years. The whole of the decrease in the rate of deaths occurs in that of diseases in the febrile group.

The admissions and deaths from the principal diseases in the class, are shown in the following Table :—

West Indies
Command.

White Troops.	1875.				1869-74.	
	Strength 1,131		Ratio per 1,000.		Ratio per 1,000.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
General Diseases.						
<i>Febrile—</i>						
Eruptive Fevers.	1	..	·9	..	·8	..
Continued Fevers	74	..	65·4	..	133·7	2·50
Yellow Fever . . . . .	..	..	..	..	4·8	1·87
Paroxysmal Fevers	27	..	23·9	..	64·1	1·25
Influenza	4	..	3·5	..	2·0	..
Erysipelas	1	..	·9	..	1·3	..
Other Diseases of this group . . . . .	..	..	..	..	1·1	..
Total	107	..	94·6	..	207·8	5·62
<i>Constitutional—</i>						
Rheumatism	35	..	30·9	..	19·6	..
Syphilis	83	..	73·4	..	63·0	..
Scrofula, Phthisis, &c.	9	2	8·0	1·77	8·8	2·12
Scurvy and Purpura . . . . .	..	..	..	..	·1	..
Anæmia	17	..	15·0	..	10·6	..
Other Diseases of this group . . . . .	..	..	..	..	1·5	..
Total	144	2	127·3	1·77	103·6	2·12

Eruptive Fevers.—The admission under this head was due to measles.

Continued Fevers.—The rate of admissions for continued fevers is 157·6 per 1,000 of the strength, lower than the rate of the preceding year, and no illness from a fever of this nature proved fatal. No admission for *enteric fever*, occurred during the year; the epidemic of that disease at Newcastle in Jamaica, which caused so large a relative amount of sickness in 1873, and in 1874, appears to have ended with the last-mentioned year.

Simple Continued Fever.—Only 19 admissions for this fever are returned. *Febricula*, of the 55 admissions a considerable number were caused by intemperance.

Paroxysmal Fevers.—The rate of admissions is less than one-third of that of the preceding year; excepting 8 for remittent fever, all the admissions were for ague.

Syphilis.—The rate of prevalence, is a little higher than in the preceding year.

Scrofula, Phthisis, &c.—The rates of prevalence, and of deaths, differ only fractionally from the corresponding rates of the preceding year, and they are also in close accordance with the average rate of a period of 6 years.

LOCAL DISEASES.—Compared with the preceding year, there is a decrease in the rate of admissions in every order, except in *Diseases of the Absorbent System*, and in those of the *Organs of Locomotion*.

Diseases of the Digestive System.—A material reduction occurs in the rate of admissions on that of 1874, but it is accompanied by a higher death rate; of the four deaths from diseases in this order, two were due to disease of the liver, one to dysentery, and one to typhilitis, which came on after the application of nitric acid to internal piles, but the man also suffered from dysentery.

CONDITIONS, &c.—Debility.—The rate of admissions is one-third lower than that of the preceding year, a result which is probably in correspondence with the decreased prevalence of fevers.

Poisons.—A higher rate of admissions, with a lower rate of deaths than in the preceding year, is observed in connection with this class of diseases;

of the 13 admissions, 12 were due to delirium tremens, and 1 to alcohol taken in an immediately poisonous quantity. *West Indies Command.*

INJURIES.—Accidental.—The rate of admissions is 40·9 per 1,000 men lower than the rate of 1874.

2.—BLACK TROOPS.

The Black Troops serving in the West Indies Command, consisted of one wing of the 1st West India Regiment, of the 2nd West India Regiment, and of a detachment of Military Labourers.

The stations occupied were Barbadoes, Demerara, Jamaica, Honduras, and Bahamas.

The average annual strength was 1,223; the admissions into hospital were 1,242; the deaths were 21; the rates given by these numbers are, for admissions 1015·5, and for deaths 17·17 per 1000 of the strength; both are lower than the corresponding rates of the preceding year, that of deaths by 5·20 per 1,000 of the strength.

The comparative prevalence of disease in the principal divisions of the Command is shown in the following Table:—

Stations.	Strength.	Admissions.	Deaths.	Ratio per 1,000 of Strength.	
				Admissions.	Deaths
Windward and Leeward Islands and Demerara	504	340	9	674·6	17·86
Jamaica	409	480	6	1173·6	14·67
Bahamas	128	179	3	1398·4	23·44
Honduras.. .. .	182	243	3	1335·2	16·50

The admissions and deaths in the different classes and orders of diseases are shown in the following Table:—

West Indies
Command.

Orders.	Black Troops.				1875.				1869-74.	
	Diseases.				Strength 1,223.		Ratio per 1,000.		Ratio per 1,000.	
					Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
	I. General Diseases.									
1	Febrile Group	149	6	121·8	4·90	174·9	1·88			
2	Constitutional „ ..	340	8	278·0	6·54	240·7	8·59			
	II. Local Diseases.									
	Diseases of the—									
1	Nervous System	16	1	13·1	·81	20·7	1·53			
2	Eye	26	..	21·3	..	17·2	..			
3	Ear	6	..	4·9	..	2·0	..			
4	Nose	1	..	·9	..	1·1	..			
5	Circulatory System ..	14	..	11·4	..	8·6	1·88			
6	Absorbent „ ..	30	..	24·5	..	22·7	..			
8	Respiratory „ ..	51	2	41·7	1·64	61·7	2·82			
9	Digestive „ ..	115	2	94·0	1·64	91·3	1·41			
10	Urinary „ ..	175	2	143·1	1·64	135·7	·71			
11	Generative „ ..	34	..	27·8	..	20·7	..			
12	Organs of Locomotion ..	20	..	16·3	..	10·7	·47			
13	Cellular Tissue	37	..	30·3	..	20·2	..			
14	Cutaneous System	99	..	80·9	..	82·2	..			
	III. Conditions, &c.									
	Debility	7	..	5·7	..	4·5	·12			
	IV. Poisons				2	..	1·6	..	3·2	..
	V. Injuries.									
1	Battle .. ..	..	..	..	..	1·5	·24			
2	Accidental	119	..	97·3	..	99·1	·47			
4	Self Inflicted .. ..	..	..	..	..	·1	·71			
	VI. Surgical Operations.				1	..	·9	..	1·2	..
	No appreciable disease ..	..	..	..	..	1·1	·12			
	Total	1,242	21	1015·5	17·17	1021·1	20·95			
	Average of 10 years, 1865-74..	..	..	1073·5	22·01	..	..	

GENERAL DISEASES.—Compared with the preceding year, there is a reduction of 139·8 per 1,000 in the rate of admissions for diseases of the *febrile* group, but this is accompanied by a five-fold greater death-rate; the rate of admissions of diseases of the *constitutional* group, a little exceeds that of 1874, and the death-rate is not far from twice as great.

The admissions and deaths from the principal diseases of this class are shown in the following Table:—

Black Troops.	1875.				1869-74.		West Indies Command.
General Diseases.	Strength 1,223.		Ratio per 1,000.		Ratio per 1,000.		
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	
<i>Febrile Group—</i>							
Eruptive Fevers	6	1	4.9	.81	5.5	..	
Continued "	31	2	25.3	1.64	47.3	.70	
Yellow Fever .. .. .	..	..	..	..	.7	.12	
Paroxysmal "	110	2	90.0	1.64	114.3	1.06	
Influenza .. .. .	..	..	..	..	1.5	..	
Erysipelas .. .. .	..	..	..	..	.1	..	
Other diseases of this group	2	1	1.6	.81	5.5	..	
Total	149	6	121.8	4.90	174.9	1.88	
<i>Constitutional Group—</i>							
Rheumatism	81	..	66.2	..	68.7	.12	
Syphilis	220	..	180.0	..	143.0	.23	
Scrofula, Phthisis, &c.	36	8	29.4	6.54	26.5	8.12	
Scurvy and Purpura .. .. .	..	..	..	..	.2	..	
Anæmia	3	..	2.4	..	1.3	..	
Other Diseases .. .. .	..	..	..	..	1.0	.12	
Total	340	8	278.0	6.54	240.7	8.59	

Eruptive Fevers.—Of the six admissions, two were due to small-pox, and four to measles.

Continued Fevers.—The rate of admissions for fevers of this kind is less than one-fourth of that of the preceding year. *Enteric Fever.*—One admission for this disease occurred, that of a man of the 2nd West India Regiment, stationed at Port Royal in Jamaica; the illness was fatal. *Simple Continued Fever.*—23 admissions are returned under this head; one case at Up Park Camp, Jamaica, being fatal; no details respecting it are given.

Paroxysmal Fevers.—The rate of admissions is 25.8 per 1,000 of the strength lower than that of 1874; but the proportional mortality was greater. From *Remittent Fever*, there were two deaths—one at Jamaica, and one at the Bahamas. The Medical Officer in charge of the detachment of the 2nd West India Regiment at Honduras, remarks on the diminished prevalence of *Ague*, compared with that of the preceding year; and at Demerara there were only 15 admissions for *paroxysmal fevers* in an average strength of 304 non-commissioned officers and men.

Other Diseases.—One admission for pyæmia, took place at Up Park Camp; the case ended fatally.

Rheumatism.—The rate of admissions is one-third lower than that of the preceding year.

Syphilis.—The rate of admissions is 31.2 per 1,000 higher than that of 1874.

Scrofula, Phthisis, &c.—The rate of admissions is 9 and the rate of deaths is 2.65 per 1,000 higher than in the preceding year. The rate of prevalence for diseases of this kind is three-fold greater than that of the White Troops serving in this Command, and the rate of deaths is higher in the same proportion.

LOCAL DISEASES.—*Diseases of the Nervous System*—One death in this order is returned as due to epilepsy; the Medical Officer states that the disease was suspected to be of syphilitic origin, and at the examination of the body a gummatous tumour was found in the anterior portion of the left lobe of the brain.

*West Indies
Command.*

Diseases of the Digestive System.—The rate of admissions is 29·5 per 1,000 lower than that of the preceding year; both of the deaths were due to dysentery.

Diseases of the Urinary System, are in a higher rate of prevalence than in 1874.

Diseases of the Cutaneous System.—There is a reduction of 37 per 1,000 on the rate of admissions in the preceding year. One admission is returned as due to "beef worm;" it took place at Honduras; the Medical Officer of the detachment there states, that the parasite producing the affection is common in that colony, and that it appears to be the same as that which causes the "Bulama boil" of the West Coast of Africa.

Poisons.—Both of the admissions in this class were due to eating poisonous fish

SANITARY REPORT.

Jamaica.

Surgeon-Major Thornhill reports:—"On the whole, the health of the troops serving in Jamaica during the past year (1875) has been excellent, when compared with that of previous years.

Referring to the sickness at Newcastle, Surgeon-Major Hoysted states it to have been connected in some measure with the rains, which, more especially in 1874, were very unseasonable, and extended over an unusually long period; but there is far more reason, he believes to associate the diseases with local, than, with any general atmospheric influences—wet clothes, intemperate habits, and the drinking of water containing suspended vegetable matter, and other deleterious substances. With this statement as to the probable cause of sickness at Newcastle, Surgeon-Major Thornhill agrees, and urges the erection of a drying-room at Newcastle, as previously recommended by him, for the purpose of drying the men's clothes after getting wet in the heavy showers prevalent at this station. The building of a gymnasium and swimming bath would, it is thought, have the effect of diminishing intemperance and improving the men's general health; the latter might be constructed with little expense. The construction of filtering beds for the water set apart for drinking purposes is very much needed before the urgent sanitary requirements of this post can be called complete.

Many improvements, in a sanitary point of view, have been effected during the year at the several stations.

Statement of sanitary improvements carried or being carried out:—

Up Park Camp.—Filtering apparatus for main tanks authorised; additional ablution accommodation provided; bush in vicinity of camp cleared away; additional cooking arrangements provided; and main tanks and bath cleansed.

At Newcastle.—(1) Additional cooking accommodation; (2) conversion of the officers' latrines to the dry-earth system; (3) additional latrine accommodation, with repairs; (4) ventilation and drainage improved, tanks cleansed, barracks and hospital limewashed, and bush cleared away.

One case of cholera appeared at Up Park Camp, in an officer of the 2nd West India Regiment; this was the only case that occurred in the island, so far as I have been informed. Yellow fever to some extent occurred amongst the civil population; the troops all escaped."

SANITARY REPORT.

Barbadoes.

Deputy Surgeon-General Gilborne reports:—"The health of the troops, and of the island generally, has been excellent during the year 1875.

The Head-Quarters and three Companies of the 35th Regiment (Royal Sussex) landed on the 18th November in good health. The Head-Quarters of the 98th Regiment, stationed at St. Ann's since February 1873, having been relieved by the 35th Regiment, embarked for Malta on board the "Himalaya," on the 23rd November.

The diseases treated in hospital during the year have not been of a serious nature; venereal diseases furnished nearly one-fourth of the admissions.

The Black Troops have been tolerably healthy. The detachment 2nd West India Regiment, and Corps of Military Labourers, were stationed at St. Ann's throughout the year. *West Indies Command.*

Barracks—The sanitary condition of the barracks has been satisfactory. A suitable quarter for the married soldiers, Royal Artillery, has been erected and taken into use."

The remaining sanitary improvements have been of a minor character.

Section II.

On the Extent of Invaliding.

Twenty-six non-commissioned officers and men of the White Troops were invalided home, and 24 invalids from the Command were finally discharged at Netley during the year, giving a rate of 23 per 1,000 of the strength in respect of the first, and of 21·22 per 1,000 in respect of the last. The proportion of invalids sent home is a little lower than that of the preceding year, but the proportion of the finally discharged is double. *West Indies and West Africa Commands.*

Of the Black Troops serving in the West India and in the West Africa Settlements Commands together 45 non-commissioned officers and men were discharged the Service during the year, being in the proportion of 25·90 per 1,000 of the strength.

	White Troops.		Black Troops.
	West Indies Command.		West Indies and West Africa Command.
Mean Strength	1,131.		1,734
Classes of Disabilities.	Invalids sent Home.	Discharged as Invalids at Netley.	Discharged as Invalids in the Colonies
I. General Diseases.			
Constitutional Group.. ..	8	12	25
II. Local Diseases.			
Diseases of the—			
Nervous System	2	..	4
Eye .. ..	..	..	2
Ear .. ..	..	2	1
Circulatory System	3	5	4
Respiratory	1	..	..
Digestive	5	..	..
Urinary	1	1	2
Locomotive	1	1	..
Cellular Tissue .. ..	..	..	1
Cutaneous System .. ..	..	..	2
III. Debility	4	2	2
V. Injuries.			
Accidental	1	1	..
General Total	26	24	45
Ratio per 1,000 of { 1875 ..	23·00	21·22	25·90
Mean Strength .. { 1864-73	31·82	15·05	15·37

*Section III.**Mean Daily Sick.*

*West Indies
Command.*

The average number of White Soldiers always ineffective from sickness was 47·25; the average number of Black Soldiers ineffective was 71·92.

The usual information calculated from these numbers is given in the following Table :—

Constantly Sick.		47·25	71·92
		White Troops.	Black Troops.
Ratio per 1,000 of strength of con- stantly Sick.	1875 ..	41·78	58·81
	1865-74 ..	46·80	58·02
Mean sick time to each Soldier.	1875 ..	15·25	21·46
	1865-74 ..	17·08	21·16
Average duration of each case of sickness	1875 ..	18·10	21·14
	1865-74 ..	16·35	20·43

*Section IV.**On the Influence of Age on the Mortality.*

In consequence of the small number of men who had completed a residence of 12 months in the Command, the statistics on this subject have not been compiled.

VII.—ON THE HEALTH OF THE TROOPS SERVING IN THE WEST AFRICA SETTLEMENTS COMMAND.

Section I.

Sickness and Mortality

STATISTICAL REPORT.

1.—WHITE TROOPS.

THE White troops serving in the Command consisted of Staff-Serjeants of *West Africa*. the 1st West India Regiment, their average annual strength was 9; the admissions into hospital amongst them were 21, and there was one death. Three Staff-Serjeants were invalided during the year.

The admissions were chiefly due to paroxysmal fevers; the death was due to delirium tremens; the diseases necessitating the invaliding of the three non-commissioned officers, were phthisis, remittent fever, and dysentery.

2.—BLACK TROOPS.

The Black troops serving in the West Africa Settlements Command, consisted of the service companies of the 1st West India Regiment, detachments of which were stationed at Sierra Leone, Cape Coast, and Accra; for part of the month of January the station of Elmina was also occupied.

The average strength of the Black troops was 511; the admissions into hospital were 615; the deaths were 10. The rates represented by these numbers are—for admissions 1203·5 and for deaths 19·57 per 1,000 respectively. The first rate is 646 and the last is 15·70 per 1,000 lower than the corresponding rate of the preceding year, both are also much lower than the average rates for ten years.

The following Table shows the admissions and deaths in each class and order of diseases:—

West Africa.

Order.	Black Troops.	1875.				1869-74.	
		Mean Strength, 511.		Ratio per 1,000.		Ratio per 1,000.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
	I. General Diseases.						
1	Febrile Group	143	..	279·8	..	548·7	7·02
2	Constitutional „	165	5	322·9	9·78	232·5	6·73
	II. Local Diseases.						
	Diseases of the—						
1	Nervous System	9	2	17·6	3·91	16·7	2·63
2	Eye	12	..	23·5	..	21·9	..
3	Ear .. ..	..	..	..	..	2·3	..
4	Nose .. ..	..	..	..	..	·9	..
5	Circulatory System	3	..	5·9	..	7·3	1·17
6	Absorbent	3	..	5·9	..	16·7	..
8	Respiratory „	44	1	86·1	1·96	98·0	4·68
9	Digestive „	54	1	105·7	1·96	227·0	10·24
10	Urinary „	45	..	88·1	..	114·4	·88
11	Generative „	9	..	17·6	..	25·4	..
12	Organs of Locomotion	7	..	13·7	..	15·2	·58
13	Cellular Tissue	9	..	17·6	..	52·6	·58
14	Cutaneous System	66	..	129·2	..	137·5	..
	III. Conditions, &c.						
	Debility	6	..	11·7	..	13·2	..
	IV. Poisons.	1	..	1·9	..	·9	..
	V. Injuries.						
1	Battle .. ..	..	..	..	..	20·5	2·05
2	Accidental	38	..	74·4	..	86·0	1·17
3	Homicidal	1	1	1·9	1·96	..	..
4	Self-inflicted .. ..	..	..	..	..	1·1	..
6	Judicial .. ..	..	..	..	..	·9	..
	IV. Surgical Operations..	..	..	..	..	·6	..
	Not stated. . . . .	..	..	..	..	1·4	..
	No appreciable disease .. ..	..	..	..	..	·3	..
	Total	615	10	1203·5	19·57	1642·0	37·73
	Average of 10 years 1865-74	..	..	1462·6	35·79	..	..

General Diseases.—The rate of diseases of the *febrile group*, is less than the half of that of 1874, and no illness was fatal; the rate of prevalence of diseases in the *constitutional group*, is one-third higher than in the preceding year, and that of deaths is higher in about the same proportion.

The following Table shows the admissions and deaths from the principal diseases in this class:—

Black Troops.					Admitted.	Died.	Ratio per 1,000 of Mean Strength,	
General Diseases.							1875.	
							Admitted.	Died.
<i>Febrile Group—</i>								
Continued Fever..	..	..	..	1	..	1·96	..
Paroxysmal „	..	..	..	141	..	275·92	..
Other diseases ..	..	..	..	1	..	1·96	..
Total ..	..	..	..	143	..	279·84	..
<i>Constitutional Group—</i>								
Rheumatism ..	..	..	..	65	..	127·20	..
Syphilis ..	..	..	..	76	..	148·73	..
Scrofula, Phthisis, &c. ..	..	..	..	22	4	43·05	7·82
Anæmia ..	..	..	..	1	..	1·96	..
Other Diseases ..	..	..	..	1	1	1·96	1·96
Total ..	..	..	..	165	5	322·90	9·78

Eruptive Fevers.—There was no admission due to a fever of this nature during the year.

Continued Fevers.—Only one admission (for *febricula*) is returned under this head.

Paroxysmal Fevers.—Nearly the whole of the decrease in the rate of diseases in the febrile group on that of the preceding year occurs in fevers of this nature. Two-thirds of the admissions were due to ague, and one-third to remittent fever. The proportional prevalence of these diseases was considerably greater in the Gold Coast, than in the Sierra Leone portion of the Command.

Other Diseases.—The admission was due to diphtheria; it took place at Accra, on the Gold Coast.

Rheumatism.—The rate of prevalence is 41· per 1,000 men higher than in the preceding year.

Syphilis.—This disease was more prevalent than in 1874, and was proportionately most so at Sierra Leone; the excess on the rate of the preceding year is 38· per 1,000 men.

Scrofula, Phthisis, &c.—Diseases of this nature were more prevalent than in 1874, and caused a higher rate of mortality. All the deaths were due to consumption, the disease from which the negro of West Indian origin, suffers in such disproportionate frequency.

Local Diseases.—Diseases of the *nervous system*, were less prevalent, but were fatal in more instances than in 1874. The deaths from diseases in this order were due to apoplexy, and to paralysis.

Respiratory System.—The rate of admissions for diseases of this order is less than that of the preceding year by 63; and that of deaths is less by 3·04 per 1,000 men, reductions mainly to be ascribed to the fact that the men were not, as in 1874, exposed to the hardships of field service. The death followed an attack of pneumonia.

Diseases of the Digestive System.—The rate of prevalence of diseases of this order is not much more than one-third, and that of deaths is less than one-fifth, of the corresponding rate of 1874, results due to the same cause as that noted above. The admissions for dysentery, and for diarrhoea together, in the Gold Coast part of the Command, were 23; in the Sierra Leone part, in a much greater strength, they were only four.

Diseases of the Cutaneous System.—The prevalence of diseases of this order was a little less than in the preceding year. Respecting the admissions from

West Africa.

one disease in it, the following remarks occur in the Report of the Medical Officer at Cape Coast:—"The ulcers on the legs were very often caused by the "uncomfortable gaiters the men wear; they were often difficult to heal, and "were apt to recur on the slightest irritation." He also notices that there was not a single admission from guinea-worm during the year, an almost unprecedented occurrence at that station.

INJURIES.—*Homicidal.*—One injury is returned in this order—a fracture of the skull; it resulted in death.

Officers.

The average annual strength of Officers stationed in the West Africa Settlements Command was 29; the number of cases of illness amongst them was 55; the only death of which notice has been received occurred at Sierra Leone, and is returned as due to ague. Of the illnesses, 30 were due to paroxysmal fevers, and 8 to dysentery, or to diarrhœa.

Six Officers were invalided during the year, 4 on account of ague, or of remittent fever, and two on account of dysentery, or of diarrhœa.

SANITARY REPORT.

Surgeon-Major Gray remarks that, "on the Gold Coast, the admissions for zymotic disease are, as usual, large; but the mortality has not been high. The rainy season on the Gold Coast was of short duration, and the greatest amount of rainfall in May and June; and the total amount of rainfall is said to be below the average of former years. The health of Europeans on the Gold Coast was rather better than usual, and the fevers of a mild type."

Surgeon-Major Gray only arrived at Sierra Leone and took over medical charge on the 17th January 1876.

During the past year a plunge bath, abundantly supplied with a constant flow of fresh water, has been constructed at Sierra Leone, affording ample accommodation for both officers and men.

Notwithstanding the recommendations made by Medical Officers with regard to ventilation, little has yet been done. In 1873, the ventilation of the Officers' quarters was somewhat improved by the cutting of large square holes through the walls. In the old Staff Sergeants' quarters, large holes were cut in a similar manner, and openings through the ceiling, which communicate with ridge ventilation through the roof, have been made, improving the ventilation considerably.

VIII.—ON THE HEALTH OF THE TROOPS SERVING AT THE CAPE OF GOOD HOPE AND ST. HELENA.

Section I.

Sickness and Mortality.

STATISTICAL REPORT.

Cape of Good Hope and St. Helena.

The average annual strength of the force was 2,741 non-commissioned officers and men, of whom 185 were stationed in St. Helena. The admissions into hospital (in both portions of the Command) were 2,126; the deaths, including those of 5 invalids on the voyage home or at Netley, were 20. The rates given by these numbers are, for admissions, 775·6, and for deaths, 7·30 per 1,000 of the mean strength. The first is 130·2, and the last is 7·10, or one-half lower than the corresponding rate of the preceding year.

For the St. Helena portion of the Command, taken separately, the admission rate is 908·1, and the death rate 5·41 per 1,000 of the mean strength.

The corps which composed the force stationed in the Command, with certain of the most important of their health statistics, are shown in the following Table:—

REPORT FOR 1875.

109

Cape of Good Hope and St. Helena.

Corps.	Years of service in the Command.	Average annual strength.	Admitted into hospital.	Died.	Invalided.	Average Daily Sick.	Ratio per 1,000 of Strength.				Average sick time to each soldier.	Average duration of cases of sickness.	Stations.
							Admitted.	Died.	Invalided.	Daily Sick.			
Royal Artillery..	..	207	196	2	9	9.26	946.9	9.66	43.48	44.73	16.32	17.24	{ St. Helena, Cape Town, Natal, Griqualand West.
Royal Engineers	..	93	83	..	1	2.97	892.5	..	10.75	31.94	11.66	13.06	{ St. Helena, Cape Town.
1st Bn., 13th Foot ..	*1	881	684	2	6	29.24	776.4	2.27	6.81	33.19	12.11	15.60	{ Natal, D'Urban, King William's Town, East London.
1st " 24th "	+1	868	750	7	8	42.17	864.1	8.06	9.22	43.58	17.63	20.52	{ Cape Town, Simon's Town, Griqualand West.
32nd Foot..	3	509	274	5	5	13.10	538.3	9.82	17.68	25.73	9.39	17.45	{ King William's Town, Fort Murray, East London.
75th " ..	+	84	48	2	..	2.05	571.4	23.81	..	24.40	8.91	15.59	{ Natal, King William's Town.
86th " ..	†	53	64	2	..	3.64	1207.5	37.74	..	68.68	25.07	20.76	{ Cape Town.
Army Service Corps..	..	8	2	..	..	.36	..	..	..	..	..	..
Army Hospital Corps	..	31	6	..	..	.48	..	..	..	..	..	..
Staff, &c. ..	..	7	..	..	..	..	..	..	..	..	..	..

* Arrived in Command on 6th January.

† Arrived in Command on 1st January.

‡ Left the Command in February.

of Good
re and
Helena.

In the following Table, the admissions and deaths in the different classes and orders of diseases are shown :—

Order.	Diseases.	1875.						1869-74.	
		Mean Strength, 2,741.						Annual Ratio per 1,000 of Strength.	
		Admitted.	Deaths.			Ratio per 1,000			
			In Command.	Of Invalids.	Total.	Admitted.	Died.		
		Admitted.	In Command.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	I. General Diseases.								
1	Febrile Group ..	150	2	..	2	54·7	·73	107·7	·70
2	Constitutional „ ..	474	..	1	1	172·9	·37	190·3	2·55
	II. Local Diseases.								
	Diseases of the—								
1	Nervous system ..	38	2	1	3	13·9	1·09	12·7	1·34
2	Eye	89	..	..	..	32·5	..	42·0	..
3	Ear	15	..	..	..	5·5	..	4·5	..
4	Nose	1	..	..	..	·4	..	·3	..
5	Circulatory system ..	36	3	1	4	13·1	1·45	13·1	1·68
6	Absorbent „ ..	48	..	..	..	17·5	..	17·4	..
8	Respiratory „ ..	65	1	1	2	23·7	·73	34·7	·81
9	Digestive „ ..	318	1	..	1	116·0	·37	151·7	1·80
10	Urinary „ ..	175	..	..	..	63·9	..	173·1	·12
11	Generative „ ..	22	..	..	..	8·0	..	14·9	..
12	Organs of Locomotion ..	11	..	1	1	4·0	·37	5·3	·12
13	Cellular Tissue ..	72	..	..	..	26·3	..	24·8	..
14	Cutaneous system ..	178	..	..	..	64·9	..	86·2	..
	III. Conditions, &c.								
	Debility	31	..	..	..	11·3	..	7·3	·17
	IV. Poisons ..	10	1	..	1	3·6	·37	8·0	·35
	V. Injuries.								
2	Accidental	391	4	..	4	142·6	1·45	126·1	1·22
3	Homicidal .. ..	..	..	..	..	..	..	·1	·06
4	Self-inflicted .. ..	..	1	..	1	..	·37	·3	..
	VI. Surgical Operations	1	..	..	..	·4	..	·5	·23
	No appreciable disease ..	1	..	..	..	·4	..	1·1	..
	Total	2,126	15	5	20	775·6	7·30	1022·1	11·15
	Average of 10 years, 1865-74 .. ..	} ..	..	..	..	1056·3	11·12	..	..

GENERAL DISEASES.—The rate of admissions for diseases in this class is less than that of the preceding year by 35·6 per 1,000 men, and the rate of deaths is less by 1·38 per 1,000. The decrease is due to the lesser prevalence of diseases in the febrile group, the rate of admissions for which is less than the half of the corresponding one of 1874. The proportion of admissions for diseases in the constitutional group exceeds that of the preceding year by 25·3 per 1,000 of the strength.

The admissions and deaths from the principal diseases in the class of general diseases, are shown in the following Table :—

General Diseases.	1875.						1869-74.	
	Mean Strength, 2,741.						Annual Ratio per 1,000 of Strength.	
	Admitted.	Deaths.			Ratio per 1,000			
		In Command.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>								
Eruptive Fevers	2	..	..	..	·7	..	1·6	..
Continued „	84	1	..	1	30·6	·36	43·4	·35
Paroxysmal „	36	..	..	..	13·1	..	32·7	·29
Cholera	1	..	..	..	·4	..	..	..
Influenza	17	..	..	..	6·2	..	25·1	..
Erysipelas	7	1	..	1	2·6	·36	3·9	·06
Other Diseases of this Group ..	3	..	..	..	1·1	..	1·0	..
Total	150	2	..	2	54·7	·72	107·7	·70
<i>Constitutional—</i>								
Rheumatism	140	..	..	..	51·1	..	40·1	·06
Syphilis	317	..	..	..	115·6	..	138·5	·23
Scrofula, Phthisis, &c. ..	12	..	1	1	4·4	·36	9·3	2·26
Scurvy and Purpura .. ..	..	..	..	..	..	..	·1	..
Anæmia	3	..	..	..	1·1	..	1·2	..
Other Diseases of this Group ..	2	..	..	..	·7	..	1·1	..
Total	474	..	1	1	172·9	·36	190·3	2·55

Eruptive Fevers.—The admissions for fevers of this nature were due, one to measles, the other to vaccination.

Continued Fevers.—The rate of admissions is almost the same as that of the preceding year. Enteric fever caused three admissions, of which two occurred in the 1st Battalion 24th Regiment, at Cape Town; one of the attacks proved fatal. The admissions for simple continued fever were 30 in number, of which nearly two-thirds are returned by the 1st Battalion, 13th Regiment. Respecting the cases of this form of fever in the 1st Battalion of the 24th, the Medical Officer writes: "I think it probable that one, if not two, of the cases returned as simple continued, were really typhoid, for this specific fever abounds here in a mild form." Febricula caused 49 admissions.

Paroxysmal Fevers.—The admissions for fevers of this nature were 29 for ague, and 7 for remittent fever. The 32nd returns a larger number for the first-named disease than any other regiment, as might be expected from the fact of many of the men having served at the Mauritius.

Cholera.—The admission for this disease was that of a man of the 32nd Regiment, whose illness, choleraic diarrhœa, was occasioned by eating unripe fruit.

Erysipelas.—The rate of prevalence of this disease is less than a quarter of that of the preceding year.

Influenza.—The rate of admissions is less, by 40·7 per 1,000 men, than that of the preceding year, and it is chiefly to its diminished prevalence that the decrease in the rate of diseases of the febrile order is due.

Other Diseases.—The admissions returned under this head were, two for diphtheria, and one for pyæmia.

Rheumatism.—The proportional prevalence of rheumatism was the same as in 1874.

Syphilis.—The rate of admissions for this disease exceeds that of the

Cape of Good Hope and St. Helena. preceding year by 30·9 per 1,000 men. Nearly two-thirds of the whole admissions are returned by the 1st Battalion 24th, stationed at Cape Town.

Scrofula, Phthisis, &c.—Both the prevalence and the fatality of these diseases, was considerably less than in the preceding year.

LOCAL DISEASES. *Diseases of the Eye.*—The rate of admissions for diseases of the eye, nearly all of which were on account of conjunctivitis, is one-third lower than that of the preceding year. More than half the admissions are returned by the 1st Battalion 13th Regiment; the Medical Officer of which states that the men of the battalion suffered from the same disease when at their former station.

Circulatory System.—With a rate of prevalence nearly the same as that of the preceding year, the rate of deaths from diseases of this nature is much lower.

Digestive System.—Compared with the preceding year, there is a decrease of 70·8 per 1,000 men in the rate of admissions, and of 2·11 in the rate of deaths. The admissions from tonsillitis, from dysentery, and from diarrhoea, were many fewer than in 1874, a circumstance perhaps accounted for in the case of the two last-named diseases, by the fact that two regiments, which had served long abroad, left the Cape Command in the year. The admissions for dyspepsia are considerably more numerous in the present, than in the preceding year.

Diseases of the Urinary System.—The rate of admissions a little exceeds the corresponding one of 1874. It is less however than the half of the proportion of the average of six years.

CONDITIONS, &c. *Debility.*—The rate of admissions for this affection exceeds that of 1874 by 6 per 1,000 men; it prevailed in the 1st Battalion 13th Regiment (which returns nearly one-half of all the admissions), and amongst the troops at St. Helena.

INJURIES.—*Accidental Injuries*, were more frequent but were less fatal than in 1874. Of the four deaths, two were due to multiple injuries, and two to drowning. *Self-Inflicted.*—The death returned in this order was from cut-throat.

Officers.

The average annual strength of the officers serving in the Command was 105; amongst whom there were 35 cases of sickness, and 2 deaths; the proportions given by these numbers are, for cases of sickness, 333·3, and for deaths, 19·05, per 1,000 of the strength. The deaths were due, one to dyspepsia, and one to hepatitis.

Women.

The average annual strength of the wives of soldiers in the Command, was 210; the cases of sickness amongst them were 107; the deaths, 3. The proportions given by these numbers are, for cases of sickness, 509·5, for deaths, 14·29 per 1,000 of the strength. Of the deaths, two were connected with the puerperal state, and one was due to embolism.

Children.

The average annual strength of the children of the non-commissioned officers and men was 438; the cases of sickness amongst them were 277; the deaths, 21. The proportions given by these numbers are, for cases of sickness, 632·4; for deaths, 47·95 per 1,000 of the strength. The numbers given are those for the Cape and for the St. Helena portions of the Command together, but most of the sickness, and the whole of the mortality, occurred in the Cape of Good Hope section, the rate of deaths for which amounted to 56·45 per 1,000 of the strength; this exceeds the rate of England for persons of the same ages by 23·23 per 1,000. Of the deaths, 5 were due to diphtheria, and 5 to whooping-cough.

SANITARY REPORT.

Deputy Surgeon-General Heffernan reports that:—"The sanitary state of the Command, during the year 1875, was generally good; such defects in the

Cape of Good Hope and St. Helena.

existing buildings as could easily be amended, have been rectified; others, *Cape of Good Hope*, that required a large expenditure of money, have been noted and referred for approval.

The health of the troops has been very good; the ratio of admissions and deaths per 1,000 annual average strength are less than they have been for many years, and indeed contrast favourably with those of the Army at Home. The prevailing diseases were venereal affections, which formed more than one-fourth of the whole number of admissions. Accidents come next in frequency, and the diseases of the digestive organs. There has not been any epidemic during the year, nor any amount of serious disease.

The sanitary defects existing at present are much the same as those formerly noticed, and frequently represented—viz., in *Cape Town*, the state of the Castle ditch, through which three of the town drains pass, and the state of the sea beach and foreshore between the Castle and Military Hospital. These drains discharge themselves on the beach, above low water-mark, polluting the soil and producing unhealthy exhalations that are injurious to the inmates of the Castle and Military Hospital, in certain states of the wind and tide. This state of affairs has been the subject of frequent complaint and correspondence with the municipal authorities, but no assistance could be obtained from them.

On the *Eastern Frontier*, at King William's Town, some of the men's, and most of the married soldier's quarters, consisting of old wattle and daub huts, are in a bad state of repair, but it would be a waste of money to endeavour to improve them. The hospital, also, is insufficient in size, and objectionable in other respects.

In *Natal*, owing to the increased number of the garrison recommended by Sir Garnet Wolseley, there is a want of accommodation, probably to the extent required for 500 men. The necessity being urgent and pressing, orders have been sent for the erection of kraal huts, but this can only be looked on as a temporary expedient. At this station, the hospital, being formed of old wooden huts, is not only too small, but nearly unfit for occupation. Proper quarters for the married soldiers are also urgently required. The sanitary improvements that are required are therefore very important and extensive, and can easily be gathered from the above.

Those carried into effect during the year were:—New latrines for women and children; increased latrine accommodation for men in the Infantry barracks at King William's Town, with new urinals and increased ablution accommodation in the station hospital there; a new water tank, to contain 112,500 gallons, and new ablution room at Fort Napier, Natal; with current repairs to the barracks, &c., through the division generally."

SANITARY REPORT.

Surgeon-Major Herbert reports that James Town, in which the Infantry barracks (now almost empty, being occupied by a few soldiers' families only), the Military Prison, and Hospital are situated, is placed in a valley between two high rocky ranges of hills, but open to the influence of the trade winds. The climate is here hot and enervating: fevers and abdominal affections are the prevailing diseases of the inhabitants. Ladder Hill, where the main body of the troops is located, is very much healthier; it is more than 600 feet above the sea-level. It is, however, hot and enervating during the day from direct solar and radiated rock heat; but the nights (except during the height of summer) are generally cool and refreshing, and make it very superior to James Town as a military station.

Dr. Herbert remarks that Ladder Hill barracks has, in addition to the doors and windows, have very good ridge and side ventilation, which render it healthy. New barrack rooms at High Knoll are about to be constructed, the old ones having been pulled down in re-building the fort. The wind blows, as a rule, from the south-east throughout the year, but with certain variations of the N.E. wind some nuisance is complained of from the effluvia of the latrines, which are built on the edge of the cliff, and some of the soil lodges on the verge of the rock, about 200 ft. or 300 ft. below, being blown back on the

t. Helena. barracks. Unless some large iron tubes were carried right down to the water's edge this must be deemed unavoidable.

The old Military hospital at the head of James Town valley has been re-constructed, and put into thorough repair. It is about 80 ft. above the sea-level at the head of the valley, and about a quarter of a mile from the Infantry barracks, and is reported to be an excellent hospital, although its site in James Town valley is an objectionable one.

Surgeon-Major Herbert states that small-pox has not visited the island within the memory of the oldest inhabitant. This officer repeats the opinion previously expressed by him—viz., that the steepness of the hills, and the direct solar and radiated heat, make the climate a very trying one for Europeans, and that these causes tend to induce disorders of the heart and great vessels.

Section II.

On the Extent of Invaliding.

Cape of Good Hope and t. Helena. Thirty-five invalids were sent home, seventeen from the Command were discharged the service at Netley, and one invalid was discharged in the Colony, during the year, being in the rates of 12·77 and of 6·57 per 1,000 of the strength respectively.

The classes and orders of the diseases which necessitated the invaliding of the year are shown in the following Table :—

Disabilities.	Invalids sent to England from the Cape and St. Helena.	Invalids Discharged the Service at Netley, and at the Cape.
I. General Diseases.		
Constitutional Group	11	3
II. Local Diseases.		
Diseases of the—		
Nervous System	4	3
Eye	3	..
Ear	1	1
Circulatory System	5	4
Respiratory „	2	..
Digestive „	1	1
Urinary „	1	1
Organs of Locomotion	5	4
III. Conditions.		
General Debility	1	..
V. Injuries.		
Accidental.. ..	1	1
Total	35	18
Ratio per 1,000 of Mean { 1875 ..	12·76	6·57
Strength.. .. { 1865-74 ..	28·41	20·85

The rate of primary, and also that of final invaliding, is lower than in the preceding year. The chief part of the reduction in both instances, occurs in disabilities due to diseases in the constitutional group.

Section III.

Mean Daily Sick.

The average number constantly sick in the Command was 103·27, being in the proportion of 37·68 per 1,000 of the strength, showing a reduction of 5·93 on the corresponding rate of the preceding year. *Cape of Good Hope and St. Helena.*

The usual information, calculated from this number, is given in the following Table:—

	1875.	1865-74.
Ratio per 1,000 of Strength constantly Sick.. ..	37·68	51·55
Average Sick time to each Soldier	days. 13·49	days. 18·82
Average duration of cases of Sickness	17·73	17·81

Section IV.

Influence of Age on Mortality.

The following Table shows the influence of age, in quinquennial periods on the mortality amongst the troops serving in the Cape Command in 1875:—

Corps.	Under 20.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		40 and upwards.	
	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.
Royal Artillery	4	...	79	...	73	...	44	1	33	1	5	...
Royal Engineers... ..	2	...	19	...	33	...	18	...	11	...	6	...
1st Battalion, 13th Foot ...	101	...	269	1	230	...	112	...	83	1	17	...
" " 24th "	70	1	428	1	176	2	128	1	62	2	7	...
32nd Foot	46	...	146	...	127	1	113	3	74	1	14	...
Total	223	1	941	2	639	3	415	5	263	5	49	...
Ratio per 1,000 of Mean Strength... { 1875 ...	4·48	2·17	4·69	12·05	19·01	...						
1865-74	1·23	6·14	11·07	15·11	23·70	26·49						

IX.—ON THE HEALTH OF THE TROOPS SERVING IN THE ISLAND OF MAURITIUS.

Section I.

Sickness and Mortality.

STATISTICAL REPORT.

Mauritius.

THE troops stationed at Mauritius during the year are shown in the sub-joined Table. Their average annual strength was 415; the admissions into hospital were 549; and the deaths, including that of an invalid on his passage home, were 6. The rate of admissions is therefore 1322·9, and that of deaths 14·46 per 1,000 of the mean annual strength. The first is somewhat higher, but the last is 2·28 per 1,000 lower, than the corresponding rate of the preceding year.

Corps.	Completed years of service in the Command.	Strength.	Admissions.	Deaths.	Invalids.	Average Daily Sick.	Ratio per 1,000.				Average Sick time to each man.	Average duration of cases of Sick- ness.
							Admitted.	Died.	Invalids.	Average Daily Sick.		
Royal Artillery, 2nd Battery 4th Brigade	2	81	149	1	5	3·99	1839·5	12·33	61·73	49·26	Days.	Days.
32nd Foot, Wing		319	392	4	16	12·73	1229·0	12·54	50·16	40·00	14·56	11·85
Royal Engineers, Army Hospital Corps, and Garrison Staff ... ..	...	15	8	1	...	·26	533·3	66·66	...	17·33	6·33	11·86

The Royal Artillery, were quartered at Port Louis; the 32nd, at Mahebourg and Port Louis; a proportion of the men of both corps was also stationed at Curepipe throughout the year.

The following Table shows the admissions and deaths in the various classes and orders of diseases:—

Order.	Diseases.	Strength, 415.				1875.		1869-74.	
		Admitted.	Died.			Ratio per 1,000.		Ratio per 1,000.	
			At Mauritius.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	I. General Diseases.								
1	Febrile Group ..	258	1	..	1	621·7	2·41	802·4	2·94
2	Constitutional „ ..	30	..	..	..	72·3	..	111·9	3·27
	II. Local Diseases.								
	Diseases of the—								
1	Nervous System ..	4	..	..	..	9·6	..	9·5	1·31
2	Eye	4	..	..	..	9·6	..	11·4	..
3	Ear	4	..	..	..	9·6	..	8·5	..
5	Circulatory System ..	17	..	..	..	41·0	..	8·2	2·29
6	Absorbent „ ..	4	..	..	..	9·6	..	11·4	..
8	Respiratory „ ..	19	1	..	1	45·8	2·41	31·1	·33
9	Digestive „ ..	89	3	1	4	214·5	9·64	194·6	3·27
10	Urinary „ ..	6	..	..	..	14·5	..	57·9	..
11	Generative „ ..	2	..	..	..	4·8	..	13·1	..
12	Organs of Locomotion ..	7	..	..	..	16·9	..	2·3	..
13	Cellular Tissue ..	10	..	..	..	24·1	..	22·6	..
14	Cutaneous System ..	15	..	..	..	36·1	..	65·4	..
	III. Conditions, &c.								
	Debility	7	..	..	..	16·9	..	5·6	..
	IV. Poisons ..	22	..	..	..	53·0	..	18·7	1·31
	V. Injuries.								
2	Accidental	51	..	..	..	122·9	..	100·1	·65
4	Self-inflicted .. ..	..	..	..	..	..	..	..	·33
	VI. Surgical Operations	..	..	..	..	..	..	·3	..
	Total	549	5	1	6	1322·9	14·46	1476·0	15·70
	Average of 10 years, 1865-74 .. ..	} ..	..	..	..	1419·4	18·97	..	..

General Diseases.—The rate of diseases in this class is higher than in 1874, the increase being in the *febrile* group; in the *constitutional*, it is lower. The rate of mortality in the class is lower than in the preceding year.

The following Table shows the admissions and the deaths from the principal diseases in this class:—

Mauritius.

General Diseases.	Strength, 415.		Annual Ratio per 1,000 of Mean Strength.			
	Admitted.	Died.	1875.		1869-74.	
			Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>						
Eruptive Fevers	1	..	2·4	..	·6	..
Continued „	9	..	21·7	..	72·0	..
Paroxysmal „	243	1	585·5	2·41	722·3	2·61
Influenza	5	..	12·1	..	5·9	..
Erysipelas .. ..	..	..	..	..	1·0	..
Other Diseases of this group ..	..	..	..	..	·6	·33
Total ..	258	1	621·7	2·41	802·4	2·94
<i>Constitutional—</i>						
Rheumatism	10	..	24·1	..	38·6	..
Syphilis	13	..	31·3	..	51·4	..
Scrofula, Phthisis, &c.. ..	5	..	12·1	..	8·2	2·94
Scurvy and Purpura .. ..	..	..	..	..	·3	..
Anæmia	1	..	2·4	..	13·4	·33
Other Diseases of this group ..	1	..	2·4	..	..	..
Total ..	30	..	72·3	..	111·9	3·27

Eruptive Fevers.—The admission returned in this group of fevers was due to dengue, a disease hitherto classed amongst continued fevers, but as its affinities seem to be rather with eruptive fevers, the change in classification has now been made. The attack occurred in a man of the 32nd; no remarks concerning it are made in the report from that regiment.

Continued Fevers.—The rate of admissions is higher than that of 1874, though the alteration adverted to above would tend to reduce the rate of prevalence of continued fevers in the present year. The admissions returned in this group were, all excepting one, from *febricula*.

Paroxysmal Fevers.—The prevalence of fevers of this nature exceeded the rate of the preceding year by 27 per 1,000 men. All the admissions but three were due to *ague*. The prevalence of *ague* was apparently greatest in the Royal Artillery, the proportion of attacks to strength in them being 1000 per 1,000 men. In the 32nd, a body of men in their first year of residence in the country, the proportion is 527 per 1,000. The reports do not throw light on the probable causes of this disparity, which may be referable to difference of locality at which the greater number of the men of the two bodies of troops spoken of were stationed, as much as to, longer or shorter periods of residence in Mauritius. It appears also that a large number of men attacked with *ague* were treated out of hospital; the distribution of such attacks between the two corps is not stated, but it may have been such as to alter the proportional prevalence of paroxysmal fevers as deduced from the admissions into hospital. One attack of *ague* in a man of the 32nd proved fatal; death took place after the first stage of the *ague* had apparently been recovered from, and was preceded by coma and convulsions; the *post-mortem* appearances are not given. The Principal Medical Officer remarks that in the civil population of Mauritius, attacks similar to the one spoken of are common enough; he attributes their comparative rarity amongst the troops, to the prophylactic use of quinine.

Rheumatism.—The rate of prevalence is less than half that of 1874.

Syphilis, was more prevalent than in the preceding year, but the whole number of admissions is small.

Scrofula, Phthisis, &c.—The prevalence of diseases of this nature slightly exceeded that of 1874 and also the average.

LOCAL DISEASES.—Circulatory System.—A comparatively large increase in the rate of admissions in this order on that of the preceding year was caused by the prevalence of palpitation in the 32nd; no attacks of this disease are returned except in that regiment.

Diseases of the Respiratory System.—Diseases of this order were also greatly more prevalent; one attack of pulmonary apoplexy proved fatal.

Diseases of the Digestive System.—The rate of admissions a little exceeds that of 1874, and with this there is also a higher rate of mortality; all the deaths were due to dysentery, or to hepatitis.

POISONS.—The admissions in this class are in double the proportion of 1874; all excepting two were due to delirium tremens, or to alcohol poisoning, and were those of men of the 32nd Regiment.

INJURIES.—Accidental.—The rate of admissions is 37 per 1,000 lower than the corresponding rate of 1874. No injury resulted in death.

SANITARY REPORT.

Deputy Surgeon-General Small reports.—“The rainfall (49.98 inches) was 6.16 inches below the average for the last five years, and its distribution has been very abnormal. As a rule, it increases from September to February, decreases from February to June, and increases a little in July and August, falling again in September. This year a severe drought prevailed from January to April, and the maximum monthly fall, in place of occurring in February, occurred in May, which was unprecedentedly wet. The rainfall in December also was considerably above the average. November and December were remarkable for frequency of thunder and lightning, and January to April for their relative absence. No storm took place in the island during the year. The Southern Indian Ocean also, as far as has been ascertained, was remarkably free from cyclones, information respecting two storms, neither of which was of great violence or extent, having been obtained. In the Mauritius, it has been generally remarked that the seasons which are very stormy are usually the most sickly, and that dryness—that is, comparatively dry air—has a beneficial influence on the troops; the past year is a good example of this, owing to the exceptionally dry weather which prevailed from January to April.

Port Louis, Fort George.—The important sanitary works undertaken by the General Board of Health at the “Mer Rouge” have continued to progress in a satisfactory manner; much has been accomplished in filling-in and planting its foreshores, as well as several of the creeks and shallows in the immediate vicinity. A cutting has been made by the Royal Engineers to prevent the silting up of mud, which has proved very successful. The tree plantations on the shores of the “Mer Rouge” and between it and the Fort, thrive well, their luxuriant growth testifying to the large amount of organic matter they are using up.

Mahebourg.—This station, formerly so healthy, has, of late years, become the contrary, and, although more healthy than any other town or village on the sea-coast, paludal fever, which made its first appearance there in 1868, has become very common among its inhabitants, civil and military. Much has been done by the General Board of Health here, as in Port Louis, to reduce the many sources of malaria which surround our barracks, but it is hopeless to expect—the means at their disposal being too limited—that any marked influence will be attained for years to come. As already frequently reported, the existing water supply for the village and barracks continues insufficient, and not of very good quality. Some years ago, the Government resolved to obtain a comparative pure supply from the Creole River, which has a rocky bottom; all the requisite pipes and fittings have arrived, but are not yet laid.

The ground in the barrack compound reclaimed from the river, has been, as an experiment, partially planted with the Eucalyptus. I am doubtful, however, of their success in the Mauritius, on account of the climate on the coast line being too tropical, and in the higher temperate parts on account of hurricanes and rains.

Mauritius.

In the hospital, the floor of the ward in the larger building has been renewed and the soil underneath to some depth removed, which has greatly improved ventilation. The drainage in and around the buildings has been begun, and will be probably completed during the course of the year. Buildings have been hired in the village of Mahebourg for the married families, where they are now very comfortably housed.

Curepipe.—The huts, five in number, occupied by the Troops at the Sanitarium, have had an inner lining of wood supplied, and small verandahs placed on two sides of each building. There having been no increase to the hut accommodation during the year, tents were pitched on the available cleared ground close to them, and were occupied from June to November by 5 officers, 146 men, and 13 women and children. Cyclones being of frequent occurrence in the Mauritius during the hot and unhealthy months of December to March, tents unfortunately cannot be used during the whole year. The War Department ground upon which the Hut Sanitarium is situated, is 100 acres in extent, about midway distant from the two military stations on the coast—Port Louis and Mahebourg; the site, 2,000 feet above the sea, is 1½ miles distant from the village of Curepipe and its railway station; the land is mostly covered with small scrub, with here and there the remains of the former forests. Its climate is generally considered the most salubrious in the island, the air being cool and fresh, coming direct from the sea. The ground is naturally well drained, but the health of the site would be certainly improved were subsoil drainage practicable, as, after heavy rains, small collections of water are here and there formed, which disappear but slowly. The climate seems the most favourable in the island for the rearing of children; all the new resident families have come from coast districts, and, although they still occasionally show the effects of previous malarial influence, by mild relapses of ague, serious sickness is rare, and from long experience of the station, I am convinced that ague is an imported disease.

The water supply for the encampment is obtained from several springs in the immediate vicinity, which, during the driest season, have always furnished an ample store; the water is clear, cool, and sparkling; has no odour, nor is it exposed to any source of pollution in its course to the reservoir. A few yards below this reservoir, a large plunge bath has been constructed, in which the men bathe daily; and still lower down, and close to the officers' quarters, a small pool has been also cleared as a bathing-place. Filters are supplied to several of the huts. There are as yet no gardens at the stations, but the men are fairly well supplied with vegetables purchased in the village; they have a sufficient variety in their food to keep them in fair health and condition. The great desideratum at the station is the want of amusements for the men. The Royal Engineer Department, who are now occupied clearing ground for next season's encampment, have been requested to prepare some ground for cricket, and other out-door games. The ablution hut is well supplied with metal basins; the water, however, has to be carried by hand from the reservoir. The cookhouse is large, well-built of stone, and is fitted up with an excellent cooking range. The canteen hut, part of which is used as a recreation room is well supplied with the usual drinks and groceries. All the huts are supplied with an iron stove for burning wood—a great comfort during wet and cold weather.

The latrines and urinals on the disinfecting system by charcoal and sulphate of iron, are well adapted for the purpose, and fulfil every indication required of them."

CUREPIPE.

Meteorological Observations.

Table showing the monthly and yearly temperature of the air, and the monthly and yearly rainfall at Curepipe (1880 feet above the sea level), and 40 feet lower than the Hut Sanitarium.

The temperature is deduced from daily observations with verified maximum and minimum thermometers during the whole of 1870, from January to April 1871, and from March to August 1872.

The rainfall is deduced from daily observations taken during the 5 years 1869—78:—

Months.	Temperature of Air.				Rainfall.	Remarks.
	Maximum.	Minimum.	Mean.	Approximate Mean.		
January ..	80·5	62·0	18·5	70·6	24·20	Wet and warm, with cool nights.
February ..	79·5	63·5	16·0	71·3	18·22	
March ..	78·3	64·0	14·3	71·2	15·89	
April ..	76·3	58·3	18·0	68·8	20·05	
May..	75·0	56·0	19·0	66·0	6·15	Generally a fine month.
June ..	72·5	54·5	18·0	62·7	10·58	Increase of rain and moisture, but cool weather.
July..	71·5	52·0	19·5	61·1	7·36	
August ..	67·5	53·5	14·0	60·1	11·29	Driest months, generally fine weather, temperature increasing.
September ..	71·0	52·0	19·0	62·3	6·12	
October ..	75·0	56·0	19·0	65·2	6·03	
November ..	75·0	58·0	17·0	67·2	5·18	Temperature and rainfall increasing much.
December ..	80·0	62·0	18·0	70·8	13·05	
Annual Mean ..	75·2	57·6	17·6	66·5	144·12	

The mean temperature of Curepipe being 66·5°, and that of Port Louis 70·0°, the difference in temperature for an altitude of 1880 feet is 10·5°. This is probably owing chiefly to Curepipe being much more exposed to the trade wind than Port Louis.

The mean annual rainfall at Port Louis is 39·09 inches against 144·12 at Curepipe.

Section II.

On the Extent of Invaliding.

During the year, 21 invalids were sent home, and one man from this Command was discharged the service at Netley during the same period. The proportion of the first is 50·60 per 1,000 men, being double that of the preceding year.

The following Table shows the classes and orders of the diseases which necessitated invaliding from the Command :—

Mauritius.

Class.	Order.	Diseases.	Invalids sent Home.	Discharged the Service at Netley.
I.	1	Febrile group	1	..
	2	Constitutional group ..	5	..
II.	5	Circulatory system ..	3	..
	8	Respiratory „ ..	1	1
	9	Digestive „ ..	3	..
	10	Urinary „ ..	1	..
	12	Organs of Locomotion ..	2	..
	14	Cutaneous system ..	1	..
III.	..	Debility	2	..
IV.	..	Poisons	2	..
		Total	21	1
		Ratio per 1,000 { 1875 .. of Strength. { 1865-74	50·60 44·15	2·41 16·18

*Section III.**Mean Daily Sick.*

The average number constantly sick was 16·98.

The following Table gives the usual information calculated from the above number :—

	1875.	1865-74.
Ratio per 1,000 of Strength constantly Sick	40·92	53·58
Mean Sick-Time to each Soldier	14·90	19·56
Average duration of cases of Disease	11·26	13·76

All the rates are in excess of the corresponding ones of the preceding year, that of constantly sick being higher by 5·09 per 1,000 men, and the mean sick time for each soldier is 1·82 days longer.

*Section IV.**Influence of Age on the Mortality.*

The following Table shows the death rates of the non-commissioned officers and men serving in the Command, at the several ages, arranged in quinquennial periods :—

Corps.	Under 20.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		40 and upwards.	
	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.
Artillery	2	..	22	..	32	..	9	1	8	..	5	..
32nd Foot.. ..	..	..	59	..	96	2	58	1	86	1	14	..
	2	..	81	..	128	2	67	2	94	1	19	..
Ratio per 1,000 ..	..	..	..	..	15·63	..	29·85	..	10·64	..	..	..
Ratio per 1,000—* 1865-6, 1868-9, and 1873 ..	} 4·42		4·59		16·83		14·16		25·32		26·32	

* The average of six years only has been taken in order to avoid the disturbance caused by epidemic years in the small numbers under observation.

X.—ON THE HEALTH OF THE TROOPS SERVING IN THE ISLAND OF CEYLON.

Section I.

Sickness and Mortality.

STATISTICAL REPORT.

1.—WHITE TROOPS.

The average annual strength of the non-commissioned officers and men of the White Troops stationed in the Command was 1,033, amongst whom there were 806 admissions into hospital, and 14 deaths, being in the rates of 780·2 and of 13·56 per 1,000 of the strength respectively; the rate of admissions is 53·8 per 1,000 lower, but that of deaths is 7·52 higher, than the corresponding rate of the preceding year.

The corps which formed the Force and certain of the most important of their health statistics are shown in the following Table:—

Corps.	Completed Years of Service in Command.	Average Annual Strength.	Admitted into Hospital.				Average Daily Sick.				Ratio per 1,000 of Strength.				Average Sick-time to each Soldier.	Average Duration of Cases of Sickness.	Stations.
			Admitted.	Died.	Invalided.		Admitted.	Died.	Invalided.	Daily Sick.	Admitted.	Died.	Invalided.	Daily Sick.			
Royal Artillery. 6th and 7th Batteries, 2nd Brigade.	11	184	140	7	12	7·63	760·9	38·04	65·22	41·47	15·24	20·03			Days.	Days.	{ Colombo. Galle. Trincomalee.
57th Regiment....	1	849	666	7	32	40·0	784·4	8·25	37·69	47·11	17·20	21·92			Days.	Days.	{ Colombo. Galle. Kandy.

Ceylon.

The admissions and deaths in the different classes and orders of diseases are shown in the following Table:—

Orders.	White Troops ..	Strength, 1,033.				Annual Ratio per 1,000.			
		Admitted.	Died.			1875.		1869-74.	
			At Ceylon.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	I. General Diseases.								
1	Febrile Group ..	93	1	..	1	90·0	·97	163·7	2·61
2	Constitutional „ ..	45	1	..	1	43·6	·97	124·8	2·78
	II. Local Diseases.								
	Diseases of the—								
1	Nervous system ..	14	2	..	2	13·6	1·94	11·1	·69
2	Eye	40	..	..	..	38·7	..	32·0	..
3	Ear	5	..	..	..	4·9	..	10·8	..
4	Nose .. ..	..	..	..	..	..	..	·2	..
5	Circulatory system ..	16	3	1	4	15·5	3·87	16·3	1·56
6	Absorbent „ ..	28	..	..	..	27·1	..	35·1	..
8	Respiratory „ ..	16	..	..	..	15·5	..	37·4	·52
9	Digestive „ ..	210	4	..	4	203·3	3·87	277·8	6·79
10	Urinary „ ..	70	..	..	..	67·8	..	84·4	·52
11	Generative „ ..	39	..	..	..	37·8	..	22·6	..
12	Organs of Locomotion	2	..	..	..	1·9	..	4·7	..
13	Cellular Tissue ..	21	..	..	..	20·3	..	29·5	..
14	Cutaneous system ..	96	..	..	..	92·9	..	104·4	·17
	III. Conditions, &c.								
	Debility	15	..	..	..	14·5	..	11·8	..
	IV. Poisons ..	2	..	..	..	1·9	..	18·8	·52
	V. Injuries.								
2	Accidental	93	2	..	2	90·0	1·94	125·1	1·22
4	Self-inflicted .. ..	..	..	..	..	..	..	·2	·34
	VI. Surgical Operations	..	..	..	..	..	..	·2	..
	No appreciable disease	1	..	..	..	1·0	..	1·7	..
	Total	806	13	1	14	780·3	13·56	1112·6	17·72
	Average of 10 years, 1865-74 .. ..	} ..	..	..	..	1180·1	19·06	..	..

GENERAL DISEASES.—The rate of admissions from diseases in this class is less by 54·5 per 1,000 men than the corresponding rate of the preceding year; both groups of the class show a reduced rate of admissions; in the constitutional, the decrease amounts to one-half.

The admissions and deaths from the principal diseases in this class are shown in the following Table:—

Diseases.	Admitted.	Died	Ratio per 1,000 of Mean Strength.			
			1875.		1869-74.	
			Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>						
Eruptive Fevers .. ..	..	..	..	..	·3	..
Continued „	81	1	78·4	·97	54·2	·87
Paroxysmal „	11	..	10·6	..	99·7	1·40
Cholera	1	..	1·0	..	·4	·17
Influenza .. ..	..	..	..	..	6·8	..
Erysipelas .. ..	..	..	..	..	1·6	..
Other diseases of this group.	..	..	..	..	·7	·17
Total	93	1	90·0	·97	163·7	2·61
<i>Constitutional—</i>						
Rheumatism	17	..	16·4	..	25·7	..
Syphilis	23	..	22·3	..	76·3	·17
Scrofula, Phthisis, &c. ..	4	1	3·9	·97	11·1	2·26
Scurvy and Purpura .. ..	..	..	..	..	·8	..
Anæmia	1	..	1·0	..	9·0	..
Other diseases of this group	..	..	..	..	1·9	·35
Total	45	1	43·6	·97	124·8	2·78

Eruptive Fevers.—No admission for any fever of this kind took place.

Continued Fevers.—The rate of admissions is 10 per 1,000 men higher than the rate of 1874, for *enteric fever*, 1 admission is returned, being that of an artilleryman who was attacked at Colombo, and to whom the illness was fatal. The Medical Officer makes the following remarks in connection with this disease: "The only case of enteric fever occurred at Colombo, although many of the cases of simple continued fever verged on, and perhaps with justice might have been described as enteric fever." 56 admissions for *simple continued fever* are returned, the majority of them occurred at Colombo. The Medical Officer of the 57th Regiment writes, "The severity of the continued fever varies much, but the convalescence in all—even in mild cases—is extremely protracted, a month or six weeks being required before a man is fit for duty after an attack of fever of five or six days' duration." *Febricula* caused 24 admissions.

Paroxysmal Fevers.—The rate of prevalence of fevers of this nature was less than the half of that of the preceding year, and readmissions made up one-half of the whole number of admissions.

Cholera.—One admission for this disease took place; the man when attacked was confined in the civil prison at Galle. Cholera broke out in the beginning of the year amongst the native population in different parts of the island; it diminished on the setting in of the rains, and reappeared as an epidemic in the months of June, and July, but during the whole of the year cases of the disease occurred occasionally in the northern parts of the country.

Rheumatism.—The rate of prevalence is little more than the half of that of 1874.

Syphilis.—The rate of prevalence is lower than that of the preceding year by 16.9 per 1,000 men.

Scrofula, Phthisis, &c.—The rate of prevalence is little more than one-fourth of that of the preceding year.

LOCAL DISEASES.—*Diseases of the Nervous System.*—There is an increase amounting to 9.6 per 1,000 men on the rate of admissions of the preceding year; half of the admissions were on account of mental disease, in some instances probably readmissions of the same individuals; the deaths were due in one case to apoplexy, in the other to sunstroke.

Diseases of the Eye, were much more prevalent than in 1874, the increase

Ceylon.

taking place altogether in the 57th Regiment; all the admissions, excepting two, were from conjunctivitis, they occurred for the most part in that portion of the corps which was stationed at Colombo. The Medical Officer attributes the occurrence of the disease to the glare of the sun, and to dust, he states that the attacks were apt to be followed by a granular condition of the eyelids, and that the disease necessitated the invaliding of three men.

Diseases of the Circulatory System, caused a slightly higher proportion of admissions than in the preceding year; the deaths were caused by hypertrophy, valve disease, fatty degeneration of the heart, and rupture of an aneurism of the thoracic aorta.

Diseases of the Digestive System, were more prevalent than in 1874, and the rate of mortality is 1·85 per 1,000 men higher; the more important diseases of this order, dysentery and hepatitis, were proportionately of most frequent occurrence in the Royal Artillery; most of the men of this corps were of longer tropical service than those of the 57th Regiment.

CONDITIONS.—*Debility*.—The rate of admissions is one-half of that of the preceding year.

POISONS.—The admissions for delirium tremens were only two in number, although drunkenness unfortunately was not rare.

INJURIES.—*Accidental*.—The admissions from accidents were considerably fewer than in 1874; one man died from the effects of concussion of the brain, and one was accidentally drowned.

Officers.

The average annual strength of the officers serving in the Command was 35; there were 15 cases of sickness and one death among them, and two officers were invalided home; the rates given by these numbers are for cases of sickness, 428·6; for deaths, 28·57; and for invaliding, 57·14 per 1,000 of the strength. The death was due to a tumour in the brain.

Women.

The average annual strength of the wives of soldiers in the Ceylon Command was 78; the cases of sickness amongst them were 60, being in the rate of 769·2 per 1,000; there was one death; the mortality is therefore in the proportion of 12·82 per 1,000. Dysentery, diarrhoea, and general debility, caused more sickness than any other diseases; the death was due to dysentery.

Children.

In an average annual strength of 145 children of non-commissioned officers and men, 48 cases of sickness only are returned; the deaths were 7, being in the proportion of 48·28 per 1,000. No sickness was due to any form of eruptive fever; the deaths were chiefly from the irritation of teething.

2.—NATIVE TROOPS.

The Native Troops employed in the Command consisted of a company of gun Lascars, having an annual average strength of 88 non-commissioned officers and men; the admissions into hospital amongst them were 12, being in the proportion of 136·4 per 1,000; the average number in hospital daily throughout the year was 25. No death occurred during the year.

SANITARY REPORT.

Surgeon-Major Popplewell reports—"Various works in connection with the completion of barracks have been going on during the year, chiefly at Colombo, where a new guard-room is nearly finished, and a new block of barracks commenced.

Newara Eliya has not been occupied by Troops. The arrangement of

sending invalids home by steamers at any time of the year practically does *Ceylon*. away with the necessity of using this station as a sanitarium.

The supply of water at Colombo, Kandy, and Galle is limited for ablution purposes. At Colombo an experiment is being tried of sinking two additional wells within a few feet of the well now in use. I have recommended the sinking of wells on the margin of the fresh-water lake, which would give an unlimited supply; but financial reasons prevent its being carried out. At Galle, the drinking-water is for months brought in water-carts from a distance of about 3 or 4 miles. At Kandy the water for ablution has, in dry weather, to be brought by water-carts from the lake, and the supply is inadequate. At Colombo and Kandy it is intended to construct water-works; and it is to be hoped that the water supply for the Troops will be obtained from this source. At Kandy the water supply for the town is so far arranged that tenders are out for the construction of the reservoirs.

The miserable lighting of the rooms in barracks is unaltered. Lamps to burn kerosine are being sent out from England, and will be some improvement.

Venereal diseases show a slight diminution, chiefly in admissions from primary syphilis. The police have taken more pains in carrying out the Contagious Diseases Act, which is in force in Colombo, Kandy, and Galle. There is a good deal of drunkenness; the climate, want of occupation and amusement, and facility of procuring liquor, all contribute to this end.

The hospitals are good in construction, and fully large for their requirements at all stations.

The change in the mode of sending invalids to England, which I recommended in my last year's report, viz.,—sending them by steamer through Suez Canal, in detail, as occasion requires, instead of keeping them for the one invalid ship of the year, has been adopted during the year, and works advantageously and well.

Cholera does not often visit Ceylon as an epidemic, but during the first half of the year it prevailed in Colombo, Galle, and, in a slighter degree, Kandy, among the native inhabitants. Cases continued to occur in northern parts, and in the line of roads leading from the north to the coffee districts in the interior, introduced by the gangs of coolies who are constantly passing backwards and forwards from Madras coast, where the disease was prevalent. In the married lines of the gun Lascars at Colombo, two women were attacked, and died. In the lines of the mounted orderlies attached to gun Lascars, one man was attacked and recovered. No Europeans among the Troops were attacked in barracks. During the prevalence of the epidemic, every sanitary precaution was observed—the men being kept, as far as possible, out of infected districts, &c. The epidemic appears not to have affected the European population generally, and only in a few instances, the mixed or burgher class.

Immediately on the occurrence of cholera in the married lines of gun Lascars at Colombo, the families were put under canvas on the parade-ground and kept there for about two months, during which time considerable improvements were effected in their rooms.

Section II.

On the Extent of Invaliding.

Forty-four non-commissioned officers and men of the European Troops were invalided from the Command during the year, being in the rate of 42·59 per 1,000 men, which is 8·39 higher than the corresponding rate of the preceding year. Thirteen men from the Command were discharged the service at Netley during the year, giving a slightly increased proportion on that of 1874.

No non-commissioned officers or men of the Asiatic Troops were discharged the service during the year.

The classes and orders of the diseases to which the invaliding of the year was due are shown in the following Table :—

Ceylon.

Strength 1,033.	Invalids sent to England.	Invalids Discharged at Netley.
Diseases.		
<i>I. General Diseases.</i>		
Constitutional Group	9	4
<i>II. Local Diseases.</i>		
Diseases of the—		
Nervous System	4	1
Eye	3	2
Ear	2	2
Circulatory System	2	1
Digestive „	11	..
Urinary „	1	..
Organs of Locomotion	2	1
Cellular Tissue	2	..
<i>III. Debility</i>	7	1
<i>V. Injuries.</i>		
Accidental	1	1
Total	44	13
Ratio per 1,000 of Mean { 1875 ..	42.59	12.68
Strength { 1865-74	40.82	18.42

*Section III.**Mean Daily Sick.*

The average number of non-commissioned officers and men (European Troops) constantly sick in Ceylon during the year, was 47.63.

The usual information, calculated from this number, is given in the following Table :—

	1875.	1865-74.
Ratio per 1,000 of Strength constantly sick	46.11	54.18
	days.	days.
Average sick time to each Soldier	16.83	19.77
Average duration of cases of Sickness	21.57	16.75

As compared with those of the preceding year, all the results in the present are unfavourable ; the number of men always in hospital is in the rate of 9.44 per 1,000 greater ; the average sick time was 3.44 days more, and the average duration of each case of sickness was 5.52 days, or one-fourth longer.

Section IV.

On the Influence of Age on Mortality.

The influence of age, in quinquennial periods, on the mortality of the Troops in the Ceylon Command in the year, is shown in the following Table :—

Corps.	Under 20.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		30 and upwards.	
	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.	Strength.	Died.
Royal Artillery	4	..	65	4	58	2	31	1	27	..	9	..
57th Foot	60	..	485	1	178	1	79	1	60	1	12	3
Total	64	..	550	5	236	3	110	2	87	1	21	3
Rate per 1,000 of Mean Strength	1875 ..	..	9.09	12.71	18.18	11.50	142.86					
	1864-73	5.79	15.89	28.81	26.50	50.25	173.91					

XI.—ON THE HEALTH OF THE TROOPS SERVING IN CHINA, AND THE STRAITS SETTLEMENTS.

Section I.

Sickness and Mortality of Troops in China, and the Straits Settlements.

STATISTICAL REPORT.

1. EUROPEAN TROOPS.

*China and
Straits
Settlements.*

The White Troops serving in this Command had an average annual strength of 1,861 non-commissioned officers and men, amongst whom the admissions into hospital were 1,779, being in the rate of 955·7 per 1,000 of the strength. The deaths in the Command, and those which occurred amongst invalids on the passage home, or after arrival, were 26; being in the rate of 13·97 per 1,000. The average number of constantly sick was 74·90, being in the rate of 40·28 per 1,000. Compared with the preceding year, the admission rate is 216·1, and the daily sick rate is 3·53 per 1,000 men lower, but the death rate is 4·20 per 1,000 higher.

The proportions in which the two divisions of the Command contributed to these results are shown in the following Table :—

Stations.	Average Annual Strength.	Admitted.	Died.	Invalided.	Average number of constantly sick.	Ratio per 1,000 of Strength.				Average sick time to each soldier.	Average duration of each case of sickness.
						Admitted.	Died.	Invalided.	Constantly Sick.		
Hong Kong	953	660	9	26	27·90	692·5	9·44	27·28	29·28	Days.	Days.
Straits Settlements* ...	908	1,119	17	53	47	1232·4	18·72	58·37	51·76	18·89	15·33

As regards the Hong Kong Division, the results of sickness compare very favourably with those of the preceding year. Lower rates are shown in every particular, except in the average duration of cases of sickness, which, in the present year, was a little longer. The admission rate is 357·1 per 1,000, or more than one-third lower; the death rate is 2·14 per 1,000 lower; the

* The Statistics of the Straits Settlements Division of the Command have been compiled from the Monthly Returns of Sick.

invaliding rate is 9·64, and that of constantly sick is 4·58 per 1,000 lower. The decreased prevalence of disease occurs in nearly every group, but it is greatest in those of *fevers, diseases of the respiratory, and of the digestive systems, in debility, and in accidental injuries.*

*China and
Straits
Settlements.*

The admission rate for the Straits Settlements portion of the Command, shows a reduction of 69·3 per 1,000 men, but the death rate is considerably more than double that of the preceding year. Both of these results are probably referable to the circumstance that some of the troops there, were employed on field service during a part of the year; the effect of this would be to lessen the recorded prevalence of disease and at the same time, its intensity would be increased, and would be expressed by a higher death rate.

The troops stationed in the Command during the year, and certain of the results of sickness in the individual corps, are shown in the following Table :—

Corps.	Completed years of Service in the Command.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average daily sick.	Ratio per 1,000 of Strength.				Average sick time to each soldier.	Average duration of each case of sickness.	Stations.
							Admitted.	Died.	Invalided.	Daily sick.			
Royal Artillery	11	181	174	8	6	6·13	961·3	44·20	33·15	33·87	12·36	12·86	{ Hong Kong and Straits Settlements, 12 months.
" Engineers	...	23	19	1	2	1·72	826·1	43·48	86·96	74·78	27·29	33·04	Hong Kong, 12.
1 Bn. 10th Foot	3	784	963	11	46	43·12	1229·3	14·03	60·00	55·00	20·07	16·34	{ Singapore, 12; det. at Penang, Malacca, and on field service.
" 80th "	3	837	597	6	23	23·60	713·3	7·17	27·48	28·19	10·29	14·43	{ Hong Kong, 12; det. at Straits Settlements, 12.
Army Hospital Corps and Garrison Staff ...	...	36	6	...	...	·33	166·6	...	...	9·17	3·34	20·07	{ Hong Kong and Straits Settlements, 12.

The admissions and deaths from diseases, in the various classes and orders, are shown in the following Table :—

China and
Straits
Settlements.

Order.	Strength	1,861.				Ratio per 1,000 of Mean Strength.			
		Admitted.	Died.			1875.		1869-74.	
			In the Command	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	I. General Diseases.								
1	Febrile Group ..	377	2	..	2	202·6	1·08	526·9	2·23
2	Constitutional Group	189	2	2	4	101·6	2·15	130·0	2·58
	II. Local Diseases.								
	Diseases of the—								
1	Nervous System ..	24	2	..	2	12·9	1·07	20·1	1·29
2	Eye	46	..	..	..	24·7	..	20·4	..
3	Ear	4	..	..	..	2·1	..	15·6	..
4	Nose .. ..	..	..	..	..	..	..	·6	..
5	Circulatory System ..	36	1	1	2	19·3	1·07	23·4	1·53
6	Absorbent „ ..	49	..	..	..	26·8	..	16·0	..
8	Respiratory „ ..	61	..	1	1	32·8	·54	57·0	1·06
9	Digestive „ ..	395	7	4	11	212·2	5·91	285·1	2·58
10	Urinary „ ..	100	..	..	..	53·7	..	95·6	·23
11	Generative „ ..	37	..	..	..	19·9	..	22·6	..
12	Organs of Locomotion	12	..	..	..	6·4	..	5·0	·12
13	Cellular Tissue ..	37	..	..	..	19·9	..	31·0	..
14	Cutaneous System ..	174	..	..	..	98·5	..	101·5	..
	III. Conditions, &c.								
	Debility	35	..	..	..	18·8	..	24·3	·12
	IV. Poisons ..	18	1	..	1	9·7	·54	14·8	1·29
	V. Injuries.								
1	Battle	20	2	..	2	10·7	1·07	..	..
2	Accidental	162	1	..	1	87·0	·54	115·9	·82
3	Homicidal .. ..	..	..	..	..	..	..	·1	·23
4	Self-inflicted	2	..	..	..	1·1	..	·2	·12
	VI. Surgical Operations	..	..	..	..	..	..	·6	..
	No appreciable Disease	1	..	..	..	·5	..	2·5	..
	Total.. ..	1,779	18	8	26	955·7	13·97	1509·2	14·20
	Average of 10 years, 1865-74 .. }	..	..	..	..	1703·6	29·92	..	..

GENERAL DISEASES.—The rate of admissions is lower than that of the preceding year by 115·2 per 1,000 men. Nearly the whole of the reduced prevalence is in diseases of the *febrile group*. In diseases of the *constitutional group*, the rate of admissions is lower by 14·5 per 1,000 men only. The rate of mortality for the whole class is lower than that of 1874 by ·65 per 1,000 men, the whole of the reduction being in the febrile group, the rate of which is only one-fifth of that of the preceding year.

The admissions and deaths, from the principal diseases in this class, are shown in the following Table :—

Strength, 1,861			Ratio per 1,000 of Mean Strength.			
			1875.		1869-74.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
General Diseases.						
<i>Febrile—</i>						
Eruptive Fevers .. .. .	..	..	..	..	1·9	..
Continued „	96	..	51·6	..	143·4	1·76
Paroxysmal „	276	1	148·3	·54	376·8	·35
Cholera	2	1	1·1	·54	·1	·12
Influenza .. .. .	..	..	..	..	2·9	..
Erysipelas	3	..	1·6	..	1·6	..
Other diseases of this group .. .. .	..	..	..	..	·2	..
Total	377	2	202·6	1·08	526·9	2·23
<i>Constitutional—</i>						
Rheumatism	70	..	37·6	..	39·7	·12
Syphilis	101	..	54·3	..	77·3	·23
Scrofula, Phthisis, &c.	15	4	8·1	2·14	9·4	1·88
Scurvy and Purpura	1	..	·5	..	·2	..
Anæmia	1	..	·5	..	1·6	..
Other diseases of this group	1	..	·5	..	1·8	·35
Total	189	4	101·5	2·14	130·0	2·58

No admission from any form of *eruptive fever* took place during the year.

Continued Fevers.—The rate of admissions is 107·3 per 1,000 men lower than that of the preceding year. The whole of the reduced prevalence of fevers of this kind was in the Hong Kong Division of the Command. No attack of continued fever was fatal.

Paroxysmal Fevers.—The rate of admissions for fevers of this nature is 11· per 1,000 men higher than that of the preceding year. The death was due to remittent fever. The following remarks respecting paroxysmal fevers occur in the report of the Medical Officer of the Station Hospital of Hong Kong:—“By far the greatest number of these (fevers) were “really fevers of malarial origin, and, almost without exception, of the “tertian type, having more or less distinct intermissions, * * * the tendency to relapse was well marked; the convalescence from each attack was “rapid, but after repeated relapses, well-marked anæmia followed, and with it “the characteristic sallow complexion (melasma), but there was very little “emaciation. * * * It must be admitted that a number of admissions— “especially those occurring during the hot season, are included under the head “of ague—in which a febrile condition had been followed by other influences, “such as those of heat, or of excesses, or of both combined; but it was “impossible to be satisfied, in every instance, that the men had really gone “through the different stages of ague. * * * In the cold season, these “sources of error were to a great extent eliminated, and the admissions “returned as of ague during it, were really such.”

Cholera.—The two admissions for this disease took place in the Straits Settlements.

Rheumatism.—The rate of admissions is 9·1 per 1,000 men lower than that of 1874.

Syphilis.—The rate of admissions slightly exceeds that of the preceding year; but the increase is considerable for the Hong Kong portion of the Command only.

LOCAL DISEASES.—The rate of admissions is less than that of the preceding

*China and
Straits
Settlements.*

year by 4·4 per 1,000 men, but the mortality from diseases of this group was higher. Both of the deaths were due to apoplexy.

Diseases of the Eye.—The rate of admissions exceeds that of the preceding year by 7·4 per 1,000 men. Nearly the whole of the admissions were for conjunctivitis, and most of them occurred amongst the troops in the Straits Settlements portion of the Command.

Diseases of the Circulatory System., are in a lower rate of prevalence than that of 1874. More than half of the admissions were on account of palpitation.

Diseases of the Respiratory System.—The rate of admissions is 53·2 per 1,000 men lower than that of the preceding year. The reduction occurs in nearly equal proportions in both portions of the Command.

Diseases of the Digestive System.—With a small reduction in the rate of prevalence of diseases of this order, compared with that of the preceding year, an increase of 4·28 per 1,000 men in the rate of mortality is associated.

Diseases of the Urinary System.—The rate of admissions shows a decrease of 10·9 per 1,000 men on that of 1874.

Poisons.—The rates of admissions, and of deaths, from diseases in this class, are both lower than those of the preceding year.

INJURIES.—Twenty admissions for injuries received in battle (in two of which death followed) are returned from the Straits Settlements portion of the Command. *Accidental.*—The rate of admissions is 19·9 per 1,000 men lower than that of the preceding year. The death returned was due to drowning.

2. ASIATIC TROOPS.

The Asiatic Troops in the Command were stationed at Hong Kong, and consisted of a company of Gun Lascars, of an average annual strength of 66 non-commissioned officers and men, nearly all of whom were natives of Madras, and consequently, as regards climate, were foreigners in Hong Kong. The admissions into hospital were 56; the deaths 2; the number of constantly sick was 1·68. No men were invalided during the year. The proportions given by the numbers stated above are, for admissions, 848·5; for deaths, 30·30; and, for constantly sick, 25·45 per 1,000 of the strength, respectively.

The results differ from those of the preceding year, in showing a lower admission, and a higher death rate, features of but little significance in connexion with the trifling strength of the force. Ague caused one-fifth, syphilis and gonorrhœa together, nearly one-half of the whole admissions. Of the deaths, one was due to hepatitis, the other, to degeneration of the heart.

Officers.

China only.

The average annual strength of the officers (in the Hong Kong portion of the Command only) was 37, amongst whom there were only 17 cases of sickness, more of which was due to ague than to any other disease. There were no deaths.

Women.

The average annual strength of the wives of the non-commissioned officers and men (in the Hong Kong portion of the Command only) was 73, amongst whom there were 40 cases of illness, and one death. Ague, dysentery, diarrhœa, and debility, caused most of the sickness. The death was due to remittent fever.

Children.

The average annual strength of the children of the non-commissioned officers and men (in the Hong Kong portion of the Command only) was 121

amongst whom 27 cases of illness only are returned. There were five deaths (being in the rate of 41·32 per 1,000 of the strength), due to *anæmia* (1), to diarrhoea (1), to convulsions (3).

China.

SANITARY REPORT.

Deputy Surgeon-General Moorhead reports—"The following improvements and additions to the sanitary arrangements in the barracks, grounds, &c., at this station have been carried out or commenced during the past year, viz.:

Murray Barracks.—The drainage of these barracks has been entirely reconstructed and improved, and the surface channels relaid.

Wellington Barracks.—The reconstruction of the drainage and latrines in these barracks has been commenced, and will be completed about April 1876.

Garrison Hospital, Wellington Barracks.—The roof ventilation has been improved, and inlet and extract ducts to the wards have been provided.

North Barracks.—The channel courses in these barracks have been relaid throughout, and ventilators to the roof of the building have been fixed. A latrine and wash-house for the women are in course of erection, and will be completed shortly.

Commissariat Buildings.—The re-arrangement of the existing latrines and construction of new ones for Europeans have been commenced, but cannot be completed until the stores arrive from England.

Kowloon.—The re-construction of the cookhouse, soldiers' latrines, women's latrines, and bath and ablution accommodation, was commenced late last year, and has since been completed. A well for supplying the Troops at Kowloon with water has been sunk.

Hospital Ship "Mecanee."—This ship, which is anchored in the middle of the harbour, and in which the whole of the sick of the European Troops in the garrison are treated, had been re-decked, newly coppered, and painted, re-roofed, the masts removed, the water tanks put in order, a store for hospital clothing formed, and sundry other improvements carried out. Proper boilers for the supply of hot water are much needed, and I understand that these have been included in the next year's estimates. A shower-bath is also a great desideratum, and this has been represented to the Commanding Royal Engineer who superintends the alterations and improvements in the vessel. Two ship-keepers, petty officers of the Royal Navy, have been sent out from England for the purpose of looking after the safety of the vessel—a step which is very necessary, especially during the typhoon season. They are provided with comfortable cabins on board, and supplied with a free ration. There are advantages and disadvantages connected with the arrangement of treating the sick on board ship. Among the former it may be stated that the ship and her surrounding are more favourably situated in a sanitary point of view, and the air at all times feels cooler and purer than in Victoria, where the barracks and garrison hospital are; indeed, the foul odours in the town are proverbial, and, until the scheme contemplated for the new water-works is carried out, it is to be feared that the drainage of Hong Kong will remain in its present very defective and objectionable condition. Among the disadvantages of having the hospital afloat and in the middle of the harbour, may be mentioned the risk to the vessel during typhoons; the possible, or even probable collisions with other vessels at such times (and indeed during ordinary weather this may occur); the discomfort to the sick proceeding in open boats at all seasons of the year; and the very considerable delay in reaching the vessel, or getting back to shore, at certain seasons of the year. As a precautionary measure, during rough or stormy weather, the sick have to be detained sometimes for a day or two in the Casualty Ward in the Garrison Hospital, at Wellington Barracks, before sending them to the "Mecanee," and a similar arrangement takes place in respect to discharging men from board ship, when there is a risk of sending them on shore. The subject has already been brought to the notice of the proper authorities. A hospital for women and children is very much wanted at Hong Kong, as there is usually a large amount of sickness among this class of patients. The cubic space and

China.

superficial area in barracks have been considered ample. The lighting of the barrack-rooms might be improved by the issue of a more suitable description of lamp, with the requisite quantity of oil ; or, better still, by the introduction of gas, now so generally used in Hong Kong.

Rations.—There has been no alteration in the scale of diet during the year, with the exception of the issue of a salt ration of beef or pork once a week for a period of about six weeks, and this was done on the recommendation of the Medical Officers, with a view of affording some little variety in lieu of a monotonous diet of fresh beef daily during the year round. The issue of the salt ration was discontinued by order from England. Its quality was occasionally very inferior, and this is in accordance with previous experience in this garrison, when salt meat was periodically issued in former years, but discontinued in 1866. Unless the meat is of the best quality—such as I have seen on board ship in the harbour of Hong Kong,—it is no doubt safer to adhere to the present ration of fresh beef. I am told that there is a plentiful supply of good fresh mutton procurable at Shanghai, and if mutton could be occasionally issued instead of beef, it would be a great boon to the soldier.

Water.—The water has been abundant and of good quality.

Clothing.—The clothing has been suitable to the climate and the changes of the seasons. In cold weather men are allowed to wear their great coats on guard.

Duties.—Up to the 11th November, when 300 men of the 80th Regiment proceeded to the Straits Settlement, owing to the outbreak of hostilities in the Malay Peninsula, the men had, on an average, 6 and 7 nights in bed, and their other duties were not of such a nature as to prove in any respect injurious to health. Since the above date, owing to the reduction in the strength of the garrison, the number of nights in bed has been reduced to 5 and 6 ; with the present strength, it seems to be impossible to give them more : but it is to be hoped, and it is believed, that during the cool season of the year such a temporary arrangement will not in any respect prove pre-sudicial to health.

Sickness and Mortality.—The satisfactory results as regards the health of the garrison are no doubt attributable, in a considerable degree, to improved sanitary arrangements, including a more perfect system of drainage, progressing from year to year ; clothing suitable to the climate and changes of the seasons ; a liberal amount of cubic space and superficial area to the men in barrack-rooms ; the proportion of nights in bed being large compared with those on duty, thus avoiding exposure to chills, foul air, and other deleterious influences ; also to precautions being taken to avoid, as far as possible, disturbing the earth in the vicinity of the barracks.

Veneral Disease.—The Contagious Diseases Act is in force at Hong Kong, and has an excellent effect in keeping the prevalence of these diseases in check. Were such an Act not in force in this colony, the consequences would be lamentable—the population being so dense, and the morality of the Chinese at such a low ebb."

Section II.

On the Extent of Invaliding.

In the following Table, the statistics of the invaliding of the Command during the year, are shown :—

*China and
Straits
Settlements.*

Mean Strength	White Troops	
	1,861	
	Sent as Invalids to England.	Discharged as Invalids in England.
Rheumatism	5	1
Syphilis	3	..
Phthisis Pulmonalis	5	8
Scrofula .. .. .	..	1
Meningitis	1	..
Paralysis	1	2
Conjunctivitis	4	..
Impaired Vision	1	..
Valve Disease, and Hypertrophy of Heart	7	1
Palpitation	3	2
Inflammation of Glands	2	..
Bronchitis.. .. .	5	1
Pneumonia	1	..
Dyspepsia	2	..
Dysentery	2	..
Diarrhoea	3	..
Hepatitis	4	1
Hernia	5	3
Hæmorrhoids .. .. .	..	1
Fistula in Ano	1	..
Bright's Disease	1	..
Stricture of Urethra	1	..
Orchitis	1	1
Malposition of Testicle .. .. .	..	1
Lumbar Abscess .. .. .	..	1
Ulcer	3	..
Eczema	1	..
Debility	15	1
Gunshot Wound	1	..
Fracture .. .. .	..	1
Surgical Operation	1	1
Total	79	27
Annual Ratio per 1,000 { 1875 ..	42·45	14·56
of Mean Strength .. { 1865-74.	72·49	31·07

Section III.

Mean Daily Sick.

The average number constantly sick during the year amongst the European Troops in the Command was 74·90, and among the Asiatic Troops 1·68.

In the following Table the usual information, calculated from these numbers, is given :—

*China and
Straits
Settlements.*

		European Troops.	Asiatic Troops.
Ratio per 1,000 of Strength constantly Sick	1875 ..	40·28	23·45
	1865-74	66·28	44·33
Average Sick time to each Soldier ..	1875 ..	days. 14·69	days. 9·29
	1865-74	24·19	16·00
Average duration of Cases	1875 ..	15·54	10·95
	1865-74	14·24	14·40

Section IV.

Influence of Age on Mortality.

China only.

In the following Table, the ages of the White Troops (in the Hong Kong portion of the Command only), in quinquennial periods, and the deaths at each age, are shewn :—

Corps.	Under 20 Years.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		40 and upwards.	
	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.
Royal Artillery	1	...	31	...	31	1	13	1	16	...	4	...
80th Foot	5	...	449	2	202	...	65	3	80	1	29	...
Total	6	...	480	2	233	1	78	4	96	1	33	...
Annual ratio per 1,000 of Strength (1875 of 7 years)	...	3·12	4·17	10·92	4·29	26·37	51·28	26·43	10·42	39·78	...	48·54

XII.—ON THE HEALTH OF THE TROOPS SERVING IN THE FIJI ISLANDS.

Section I.

Sickness and Mortality.

STATISTICAL REPORT.

Fiji Islands.

THE station of Levuka was occupied for the first time by British Troops, on the arrival of a Company of Royal Engineers, on the 23rd of September. The actual strength of the Company was 62 non-commissioned officers and men; reduced to an annual average, this gives a strength of 17; the admissions into hospital were 33, being in the rate of 1941·2 per 1,000 of the average annual strength; no non-commissioned officers or men died or were invalided during the year. The average daily sick in hospital was 2·41 men.

Diseases of the Febrile Group, caused only 4 admissions, 1 for *febricula*, the other for *influenza*.

Diseases of the Digestive System, caused 12 admissions, being more than a third of the whole; the greater comparative prevalence of diseases of this order is in correspondence with the tropical climate of the station; 1 of these admissions was due to tonsillitis, 8 to dyspepsia, 2 to diarrhoea, and 1 to hepatitis.

XIII.—ON THE HEALTH OF THE TROOPS SERVING IN INDIA.

Section I.

Sickness and Mortality.

The average annual strength of the non-commissioned officers and men of the European troops serving in the Indian Commands in 1875 was 59,344; the admissions into hospital were 77,373; the deaths were 1,099, of which 1,030 occurred in India, and 69 (being those of invalids) took place on the passage or after arrival in England. The average number of constantly sick was 3326·91. The rates from these numbers are—for admissions, 1303·8; for deaths, 18·52; and for constantly sick, 56·06 per 1,000 of the strength. The relative proportions for the chief results of sickness in each of the three Commands, are shown in the following Table:—

	Average Strength.	Admissions into Hospital.	Deaths.			Invalids.	Constantly sick.	Ratio per 1,000 of Mean Strength.				Average sick time to each soldier.	Average duration of each case of sickness.
			In India.	Of Invalids.	Total.			Admitted.	Died.	Invalids.	Constantly sick.		
												Days	Days
Bengal ...	37,769	51,118	653	41	694	1,523	2123·69	1353·4	18·38	40·32	56·23	20·52	15·6
Madras ...	11,233	12,067	163	15	178	593	619·25	1074·2	15·83	52·79	55·13	20·12	18·78
Bombay ...	10,342	14,188	214	13	227	628	583·96	1371·8	21·95	60·72	56·46	20·61	15·02
Total ...	59,344	77,373	1,030	69	1,099	2,744	3326·91	1303·8	18·52	46·24	56·06	20·46	15·69

I.—BENGAL.

STATISTICAL REPORT.

The average annual strength of non-commissioned officers and men in the Command was 37,769; the admissions into hospital were 51,118; the deaths, including those of invalids who died at sea or after arrival in England, were 694; the average number of constantly sick was 2123·7. The rate of admissions is therefore 1353·4, that of deaths is 18·38, and that of constantly sick is 56·23 per 1,000 of the average annual strength. The rate of admissions is 63·3, and that of constantly sick is ·96 per 1,000 men lower than the corresponding rate of the preceding year, but the rate of mortality is 3·15 per 1,000 men higher.

Bengal.

Bengal.

The admissions and deaths in the various classes and orders of diseases are shown in the following Table:—

Orders.	Diseases.	Strength, 37,769.				Ratio per 1,000 of Mean Strength.			
		Admitted.	Deaths.			1875.		1869-74.	
			In the Command.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	<i>General Diseases.</i>								
1	Febrile Group ..	19,057	244	1	245	504·7	6·49	645·9	8·77
2	Constitutional Group	6,109	59	18	77	161·8	2·04	159·1	2·23
	<i>Local Diseases.</i>								
	<i>Diseases of the—</i>								
1	Nervous System ..	797	93	..	93	21·1	2·46	20·1	2·35
2	Eye	766	..	..	..	20·3	..	24·0	..
3	Ear	280	..	..	..	7·4	..	7·3	..
4	Nose	27	..	..	..	·7	..	·6	·01
5	Circulatory System ..	857	33	4	37	22·7	·98	19·6	1·65
6	Absorbent	545	..	..	..	14·4	..	15·3	..
7	Ductless Glands ..	4	1	..	1	·1	·03	·1	·01
8	Respiratory System ..	2,288	36	5	41	60·6	1·09	57·3	1·24
9	Digestive	8,409	110	9	119	222·6	3·15	250·5	5·82
10	Urinary	3,939	10	2	12	104·3	·32	103·2	·35
11	Generative	546	..	..	..	14·5	..	15·2	..
12	Organs of Locomotion	195	4	..	4	5·2	·10	5·1	·04
13	Cellular Tissue ..	470	1	..	1	12·4	·03	13·1	·03
14	Cutaneous System ..	2,470	..	..	..	65·4	..	67·3	·01
	<i>III. Conditions, &c.</i>								
	Debility	757	1	1	2	20·0	·05	18·1	·09
	<i>IV. Poisons</i> ..	119	7	..	7	3·1	·19	4·6	·31
	<i>V. Injuries.</i>								
2	Accidental	3,438	33	1	34	91·0	·90	85·7	·85
3	Homicidal	1	2	..	2	·1	·05	·4	·06
4	Self-inflicted ..	4	17	..	17		·45		·59
6	Judicial .. ..	..	..	..	..	..	..	..	·02
	<i>VI. Surgical Operations</i>	13	2	..	2	·3	·05	·3	·01
	Not specified ..	..	..	..	..	..	..	·2	·01
	No appreciable disease	27	..	..	..	·7	..	·9	..
	Total	51,118	653	41	694	1353·4	18·38	1513·9	24·45
	Average of 10 years 1865-74.. ..	..	..	..	..	1487·4	25·32	..	..

GENERAL DISEASES.—Compared with 1874 there is a reduction of 45·7 per 1,000 men in the rate of admissions for diseases in this class, the whole of which occurs in the *febrile group* of diseases, for those in the *constitutional group*, the rate is rather higher. The rate of mortality for the class is higher than in the preceding year by 3·12; this is nearly the proportion by which the mortality from all diseases exceeds the rate for 1874. Both groups of the class show an increased rate of deaths, but in the instance of the constitutional group, the increase is trifling.

The admissions and deaths from the principal diseases in this class are shown in the following Table:—

Strength, 37,769.	Deaths.				Ratio per 1,000 of Mean Strength.			
General Diseases.	Admitted.	In Command.	Of Invalids.	Total.	1875.		1869-74.	
					Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>								
Eruptive Fevers	83	1	..	1	2·2	·03	2·0	·23
Continued „	4,958	74	..	74	131·3	1·96	178·3	1·99
Paroxysmal „	13,660	27	..	27	361·7	·71	454·1	1·72
Cholera „	208	139	..	139	5·5	3·68	7·0	4·66
Influenza „	23	..	..	..	·6	..	1·3	..
Erysipelas „	116	2	..	2	3·1	·05	2·4	·09
Other Diseases	9	1	1	2	·2	·05	·8	·08
Total	19,057	244	1	245	504·6	6·48	645·9	8·77
<i>Constitutional—</i>								
Rheumatism	2,196	..	..	..	58·2	..	52·0	·02
Syphilis	3,455	3	..	3	91·4	·08	88·7	·12
Scrofula, Phthisis, &c. ..	313	50	17	67	8·3	1·77	10·8	1·87
Scurvy and Purpura	11	3	..	3	·3	·08	·6	·01
Anæmia	121	..	1	1	3·2	·03	6·2	·04
Other Diseases	13	3	..	3	·3	·08	·8	·17
Total	6,109	59	18	77	161·7	2·04	159·1	2·23

Eruptive Fevers, were less prevalent than in the preceding year, and the mortality from them is in a much lower rate. Of the admissions 9 were due to small-pox, one case of which ended fatally, 2 were due to chicken-pox, and 29 to measles. The other admissions in this group of fevers (43) were for dengue, all the attacks of which occurred in the men of one particular battery of Royal Artillery.

Continued Fevers.—The rate of admissions for fevers of this kind is 50·4, and that of deaths is 1·8 per 1,000 men lower than the corresponding rate of 1874.

Paroxysmal Fevers.—The rate of admissions is 5·9, and that of deaths is 1·6 per 1,000 men lower than the corresponding rate of the preceding year.

Cholera.—After the severe epidemic of 1872 (in which the admissions were in the rate of 16, and the deaths in that of 10·51 per 1,000 men) the prevalence of this disease diminished, until in 1874 only 9 admissions from it occurred (amongst the troops) in the whole Command. In the present year cholera again took on epidemic activity, affected many stations in the Command, and caused a great loss of life, though happily a smaller one than that which occurred in the preceding epidemic.

Erysipelas.—The prevalence of this disease was less than that of the preceding year, and the rate of mortality from it was only half as high.

Rheumatism.—The prevalence of rheumatism was still greater than in 1874, in which year the rate of admissions exceeded the average.

Syphilis.—The rate of admissions exceeds that of the preceding year by 3 per 1,000, and the rate of mortality from it is also higher.

Scrofula, Phthisis, &c.—Compared with the results of the preceding year, the present shows a fractionally lower admission-rate, associated with a considerably higher death-rate.

LOCAL DISEASES.—*Diseases of the Nervous System*, were considerably more prevalent, and were much more fatal than in 1874, the admission-rate being 2·1, and the death-rate 90 per 1,000 men higher than the corresponding rate of that year. The excess of prevalence is mainly shown in the more numerous

Bengal.

admissions for sunstroke, and for neuralgia; the excess of mortality in the present year is mainly due to that following sunstroke, nearly one-half of the men attacked having succumbed to it, whilst in 1874 only one-third of the attacks proved fatal.

Diseases of the Eye, are in a lower rate of prevalence than in 1874 by 2·7 per 1,000 men.

Diseases of the Circulatory System, and of the *Respiratory System*, were both less prevalent than in the preceding year, but the decrease in the rate of admissions is not considerable for either order; that of mortality shows a (relatively) large reduction (63 per 1,000 men) in the instance of the first-named order; the death-rate for the other order of diseases is 51 per 1,000 men higher.

Diseases of the Digestive System.—Whilst the rate of admissions for diseases of this order is only 2·9 per 1,000 men lower than that of 1874, the rate of deaths is 80 per 1,000 men lower. This reduction occurs mainly in consequence of the generally less fatal nature of the attacks of hepatitis.

Diseases of the Urinary System, are in a rate of 5·7 per 1,000 men less than in the preceding year.

CONDITIONS, &c.—Debility.—The admissions exceed those in the preceding year by 1·4 per 1,000 men.

POISONS.—The rates of admissions and of deaths differ only fractionally from those of the preceding year.

INJURIES.—Accidental.—The rate of admissions for accidental injuries is nearly the same as that of 1874. The proportion of deaths following on injuries is 08 per 1,000 men lower. Of the 34 deaths due to accidents, the specific cause was a multiple injury in 2 instances, drowning in 18, impaction of a foreign body in the air passages in 2, injury of the brain or of the spine in 7, gunshot wounds in 3, and incised wounds in 2. One of the *homicidal* deaths was that of a man murdered by the natives of a hostile tribe, the other was caused by a fracture of the skull. 15 of the *self-inflicted* deaths were by gunshot, 1 by drowning, and 1 by cut-throat.

The following Table, taken from the report of the Principal Medical Officer, shows the admissions and deaths which took place at the principal stations of the Command during the year:—

Stations.		Average Annual Strength.	Admitted into Hospital.	Died in India.	Ratio per 1,000 of Strength.		Annual Ratio per 1,000. 1865-74.	
					Admitted.	Died.	Admitted.	Died.
Presidency	Calcutta ..	967	794	6	821	6·20	1384·4	21·17
	Dum-Dum ..	537	417	9	776	16·75		
	Barrackpore ..	444	792	8	1787	18·05		
	Hazaribagh ..	111	75	..	675	..		
	Darjeeling ..	76	41	..	539	..		
Allahabad	Allahabad ..	1,035	1,285	18	1241	17·39	1758·1	42·85
	Dinapore ..	938	1,229	12	1310	12·79	1543·9	24·18
	Benares ..	510	714	13	1402	25·54	1669·1	25·61
	Chunar ..	67	111	..	1656	..	2334·2	36·84
	Cawnpore ..	810	1,028	16	1269	19·75	1631·9	23·41
Oudli	Lucknow ..	2,338	2,634	51	1126	21·81	1268·6	24·87
	Fyzabad ..	972	1,342	18	1380	18·51	1173·8	24·98
	Sitapur ..	584	660	7	1130	11·98	1113·3	17·90
Rohilcund	Bareilly ..	938	934	8	995	8·52	998·0	11·13
	Moradabad ..	220	231	5	1050	22·72	1018·2	14·91
	Shahjahanpur ..	538	448	11	840	20·63	1332·0	19·95
	Ranikhet ..	1,022	982	9	960	8·80	877·9	12·56

Stations.	Average Annual Strength.	Admitted into Hospital.	Died in India.	Ratio per 1,000 of Strength.		Annual Ratio per 1,000. 1865-74.	
				Admitted.	Died.	Admitted.	Died.
Saugor ..	Jubbulpore ..	640	654	5	1021	7	1789
	Saugor ..	371	449	2	1210	5	2038
	Nowgong..	316	452	6	1430	18	1679
Gwalior	Morar ..	1,201	1,322	31	1100	25	1916
	Fortress Gwalior	336	478	11	1422	32	1306
	Jhansi ..	376	777	3	2066	7	2512
Meerut ..	Meerut..	1,458	2,599	27	1782	18	1759
	Fatehgarh ..	264	297	3	1125	11	1340
	Agra ..	1,114	1,185	11	1063	9	1326
	Muttra ..	378	309	10	817	26	1134
	Delhi ..	561	991	16	1766	28	1961
	Roorkee ..	407	409	13	1004	31	1392
Sirhind ..	Chakrata ..	799	784	2	981	2	760
	Umballa ..	1,285	1,524	32	1186	24	1431
	Jullundur ..	781	834	16	1067	20	1482
	Subathu ..	445	402	7	903	15	1114
	Dagshai ..	757	1,043	6	1377	7	954
	Solun ..	153	127	2	830	13	1844
Lahore ..	Jutogh..	75	72	1	960	13	781
	Meen Meer ..	1,081	2,674	39	2473	36	2235
	Fort Lahore ..	128	230	2	1796	15	622
	Amritsar Can- tonments	175	390	10	2228	5	1771
	Ft. Govindgarh	148	330	2	2229	13	1441
	Ferozepore ..	1,095	1,028	19	938	17	1360
	Mooltan ..	828	1,542	9	1862	10	1341
	Fort Kangra ..	41	86	..	2097	..	1032
Rawal Pindi	Bhagsu ..	96	102	4	1062	41	849
	Banikhet ..	58	57	..	982	..	1095
	Rawal Pindi ..	1,640	1,847	13	1126	7	1489
	Sialkot ..	1,052	1,588	25	1509	23	1336
Peshawar..	Campbellpore..	130	124	1	953	7	1367
	Attock..	171	366	4	2140	23	2041
	Dera Ismail Khan	99	243	2	2454	20	1630
	Khyra Gully ..	52	46	..	884	..	1243
	Kalabagh ..	106	107	..	1009	..	2062
	Bara Gully ..	102	76	1	745	9	1178
	Chungla Gully	98	104	2	1061	20	1069
	Kooldunnah ..	156	98	1	628	6	1003
	Camp Ghareeal	141	69	1	489	7	633
	Peshawar ..	1,623	5,234	24	3224	14	2623
Troops at Camps of Exercise..	Nowshera ..	459	772	4	1681	8	2285
	Cherat..	450	669	8	1486	17	1431
Troops on March, detached, &c.		606	551	2	909	3	30
Troops treated at Convalescent Depôts and other Hospitals ..		1,451	1,089	9	750	6	19
		1,964	3,271	76	1665	38	69

Bengal.

As in 1874, the highest admission-rate is that of the station of Peshawar; it exceeds the average of the whole Command by 1819 and its rate of the preceding year by 304 per 1,000 men; fevers, both of the continued, and of the paroxysmal groups, but chiefly those of the latter, caused this excessive rate of sickness. In one regiment only, the admissions for fevers of all kinds were 2,408 in number, of which 1,668 were for ague, or for remittent fever. Respecting paroxysmal fevers the medical officer of the regiment writes:—"These forms of fever prevailed epidemically during the last four months of the year, and they reduced the regiment to such a state of inefficiency that all duties, with the exception of the necessary guards, had to be suspended from the 1st of September to the 31st of December. 747 men gave 1,659 admissions into hospital, but this by no means shows the actual amount of sickness and inefficiency caused by these fevers, as, in addition to a large attending list, 120 convalescents were sent at different times to Cherat, and 140 to a convalescent camp in the district." The regiment was in its first year of service at Peshawar.

The prevalence of paroxysmal fevers in another corps quartered there, and in its second year of residence, was only about half as great. Next to Peshawar, the highest admission-rate is that of Meen Meer, which is 363 per 1,000 men in excess of its rate in the preceding year. At this station, as at that just spoken of, the great prevalence of paroxysmal fevers mainly caused the high admission-rate. The admissions for ague and for remittent fever in one regiment were in the proportion of 1502·5 per 1,000 of the strength, these diseases prevailed chiefly in the last quarter of the year. Excluding stations which had a smaller annual strength than 100 men, the lowest admission-rate is that for Kooldunna—628 per 1,000 men. Restricting the comparison to stations having a considerable strength (nearly that of a whole regiment) the lowest rates of prevalence of disease are those for Dum-Dum, 776; Muttra, 817; and for Calcutta 821 per 1,000 men. In addition to the stations just mentioned, the admissions at Ghareeal Camp, Bara Gully, Ferozepore, and at Campbellpore, were fewer than the average annual strength. The rates of mortality at the various stations, being so much influenced by the amount of invaliding which took place, do not afford satisfactory indications of the comparative intensity of disease at them from year to year; but by extending the period of observation to ten years, as is done in the Table, more reliable evidence is obtained. For this period it will be seen that the healthiness of Bareilly, exceeded that of any station in the plains, and compared favourably with that of several of the hill stations.

The admissions and deaths in the different classes and orders of diseases are shown in the following Tables, which have been compiled from the Monthly Returns of the Command:—

Divisions	Presidency.	Allahabad.	Oudh.	Rohilkund.	Saugor.	Gwalior.	Meerut.	Sirhind.	Lahore.	Bawal Pindi.	Peshawar.	Troops on March.	Camp of Exercise.	Depôts.
Average Annual Strength ...	2,035	3,330	3,789	2,350	1,281	1,881	4,883	3,508	3,461	3,657	2,460	2,254	478	1,631

Bengal.

Strength.

ut.	Sirhind.		Lahore.		Rawal Pindi.		Peshawar.		Troops on March.		Camp of Exercise.		Depôts.	
	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	
6-35	392-53	8-84	961-86	9-53	323-21	3-28	2003-25	6-50	198-31	89	169-31	2-09	604-46	9-30
1-02	178-16	2-00	173-36	2-31	132-90	55	112-19	1-22	139-75	44	192-31	...	236-83	2-48
2-45	14-25	1-42	38-14	6-36	32-81	3-83	17-48	2-84	10-65	89	12-54	...	27-90	...
...	15-68	...	14-73	...	22-15	...	19-92	...	15-08	...	22-99	...	13-64	...
...	3-14	...	6-93	...	7-38	...	13-82	...	3-55	...	...	...	2-48	...
...	86	...	3-76	...	1-09	...	41	...	...	...	...	...	...	...
1-84	19-67	1-71	16-47	29	22-15	82	30-08	41	6-65	...	4-18	...	83-69	1-86
...	8-55	...	9-53	...	8-75	...	8-13	...	13-31	...	6-27	...	22-32	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1-02	37-34	28	76-86	1-73	137-00	2-19	100-81	81	44-81	89	77-34	2-09	84-93	62
3-07	178-16	1-71	260-62	3-73	240-36	3-01	213-01	1-22	118-90	89	177-68	...	424-05	6-20
21	79-82	...	84-66	29	76-02	...	48-37	...	111-36	...	177-68	...	76-88	62
...	18-81	...	15-02	...	10-66	...	8-94	...	9-32	...	14-63	...	10-54	...
...	2-00	...	4-91	...	4-65	...	3-25	41	4-44	...	8-36	...	19-84	...
...	15-11	...	11-56	...	19-69	...	8-13	...	8-87	...	18-81	...	15-50	62
...	65-85	...	71-94	...	69-73	...	56-91	...	31-06	...	33-45	...	35-34	...
...	13-68	...	24-27	...	16-15	...	25-61	...	17-30	...	4-18	...	55-18	...
...	3-14	57	3-47	29	7-93	...	1-22	41	44	44	...	...	...	...
1-23	118-02	1-14	84-95	23	156-68	27	67-89	41	57-23	89	83-61	2-09	89-89	62
...	...	...	...	...	...	...	...	41	...	...	...	...	...	...
21	28	86	58	58	...	...	41	41	...	...	...	...	62	62
...	57	28	...	...	...	...	...	...	...	...	...	...	62	...
...	...	...	...	...	82	...	41	...	...	...	...	...	3-72	...
17-61	1165-62	18-81	1863-62	25-42	1290-13	13-95	2740-24	15-05	791-03	5-33	1003-34	6-27	1808-43	22-94

GENERAL DISEASES.

Divisions ...	Presidency.	Allahabad.	Oudh.	Bolnclund.	Saugor.	Gwalior.	Meerut.	Sirhind.	Lahore.	Rawal Pindi.	Peshawar.	Troops on March.	Camp of Exercise.	Depôts.
Average Strength ...	2,085	3,330	2,789	2,380	1,231	1,881	4,883	3,508	3,461	3,657	2,460	2,254	478	1,631
General Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>														
Eruptive Fevers ...	...	48	...	...	...	2	11	1	2	4	2	...	...	1
Continued " ...	366	2 437	387	6 268	51	138	2 120	5 456	9 378	8 613	8 1,569	12 75	1 17	3 120
Faroxysmal, ...	199	1 528	...	1 158	674	765	...	2,142	2 866	4 2,914	3 3,341	4 359	64	827
Cholera ...	...	15	9 51	36	3	27	23	29	22 18	24 15	...	2 1	...	17
Infuenza ...	3	1	...	...	...	3	...	1	...	...	3	...	...	...
Erysipelas ...	...	8	4	...	8	1	...	10	1 13	...	13	6	...	9
Other Diseases ...	1	3	...	1	...	1	...	1	1	1	...	3	...	1
Total ...	569	3 1,040	770	43 442	8 734	1 937	25 2,324	31 1,377	33 3,329	12 1,182	16 4,928	447 2	81 1	975 15
<i>Constitutional—</i>														
Rheumatism ...	60	233	...	...	46	...	...	...	273	...	60	...	24	165
Syphilis ...	111	457	...	257	76	93	...	391	1 239	...	178	...	66	170
Scrofula, Phtisis, &c.	18	28	5 42	8 17	3 11	12	3 19	3 21	3 38	8 25	1 32	3 19	2	39
Scurvy and Purpura	...	1	...	1	...	1	...	4	3	...	...	...	...	2
Anæmia ...	...	1	...	...	1	16	...	7	...	...	3	...	...	5
Other Diseases ...	1	1	...	2	...	...	...	5	1	2	3	5	...	1
Total ...	190	2 721	5 1,032	8 368	3 134	292	3 696	6 625	7 600	8 486	2 276	3 315	92	352

Bengal.

Ratio per 1,000 of Mean Strength

[illegible]

Except for the Sirhind, Lahore, and Peshawar Divisions, and for Troops on the March, the rate of admissions for *general diseases*, is lower in every Division than in the preceding year. The largest reduction is the rate for the Meerut Division—278·2 per 1,000 men; the reduction for the Saugor Division is 265·2, for the Allahabad 214·6, and for the Gwalior 106·9 per 1,000 men. In the other Divisions for which the rate for the present year is lower than that for the preceding, the reduction varies from 106·7 for the Presidency, to 13·9 for the Oudh Division. The increase in the proportion of general diseases is 319 for the Peshawar, 251·9 for the Lahore, and 44·2 per 1,000 men for the Sirhind Division. For diseases of the *febrile group*, there is a decreased rate of prevalence for every Division, except the Lahore and the Peshawar; for diseases of the *constitutional group*, there is a lower rate of prevalence for every Division, except the Oudh, Sirhind, Rawal Pindi, and the Peshawar. The rate of mortality from *general diseases*, is lower than in the preceding year—for the Presidency by 9·85, for the Allahabad by 1·55, and for the Saugor Division by 8·61 per 1,000 men. The rate is higher for every other Division, the excess varying from 11·10 men per 1,000 men for the Gwalior, to 43 per 1,000 for the Rawal Pindi Division. The association of a lesser prevalence of disease, and a smaller mortality from it than in 1874, in the Divisions first named, is due to the comparative exemption they experienced from the presence of fevers, both those of a mild, and those of a dangerous nature. The union of a reduced rate of admissions in certain of the Divisions with a higher rate of mortality is due to the diminished prevalence of fevers, and to the outbreak of cholera in them. The union of a higher rate of admissions and higher death-rate in the Peshawar Division, results from the greatly increased prevalence of fevers, both of a mild and of a severe kind.

Eruptive Fevers.—The rate of admissions for fevers of this nature is low for every Division in which any admissions took place, with the exception of the Allahabad, in which, at Cawnpore, an outbreak of dengue occurred in the F Battery, 19th Brigade, Royal Artillery. Respecting it the medical officer writes:—"An outbreak of dengue took place in the battery in a most unaccountable manner. No cases of the disease were known to exist in or near Cawnpore, yet on the 19th of October the disease showed itself; it lasted until the 13th of November; in all 43 cases of it were admitted, they were mostly well marked, and presented no peculiarities of type. No death from the disease occurred."

Continued Fevers.—The rate of admissions for fevers of this kind is higher than that of the preceding year for the Rohilcund, Gwalior, Sirhind, and Rawal Pindi Divisions, for Depôts, and also for Troops on the March; in each of the remaining Divisions the rate is lower, but as the diagnosis of a case of a continued fever from one of a paroxysmal fever must in many instances be a matter of uncertainty, it is of less moment to contrast the comparative rates of prevalence of continued fevers, than to contrast those of the mortality attributed to them in the various Divisions. Compared with the preceding year the rate of mortality from continued fevers is lower for the Presidency, Allahabad, Oudh, Saugor, Gwalior, and Meerut Divisions, and for Troops on the March, and is higher for each of the remaining Divisions. The reduction in the rate of deaths amounts to 7·44 per 100 men for the Presidency, to 5·97 for the Saugor, and is only fractional for each of the other Divisions, which show a reduced rate. The increase on the rate for 1874 amounts to 3·25 for the Peshawar, to 2·09 for the Sirhind, and to 1 per 1,000 men for the Rohilcund; in the remaining Divisions the increase is only a fractional one. These variations in the rates of mortality from continued fevers, mark pretty closely the relative prevalence of enteric fever in the different Divisions, in the two years contrasted.

Enteric Fever.—Taking all the Divisions together, the admission-rate for this disease is 2·86 per 1,000 of the strength, the death-rate is 1·53, and both are lower than the corresponding rate of the preceding year, the first by 1·81, and the last by 34 per 1,000 men. The rate of mortality to cases of the disease treated is 537·03 per 1,000.

In the following Table the stations in the Command at which admissions and deaths from enteric fever took place are shown; having been compiled from

Bengal. the Monthly Returns, the numbers differ (unimportantly) from those in the Annual Returns:—

Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Presidency ..	Dum-Dum ..	..	..	2	..	..	..	..	..	2	..
	Barrackpore ..	..	..	1	..	1	1	3	1	5	2
Allahabad ..	Allahabad ..	3	2	1	1	..	..	1	..	5	3
	Dinapore ..	1	..	2	2	..	..	2	..	5	2
	Benares ..	..	..	..	..	..	..	1	1	1	1
	Cawnpore ..	1	..	2	1	4	1	..	..	7	2
Oudh ..	Lucknow ..	1	..	8	3	..	..	2	1	11	4
	Fyzabad ..	2	1	2	1	1	..	..	..	5	2
Gwalior ..	Fort Gwalior ..	..	..	..	..	1	..	..	1	1	1
	Jhansi ..	..	..	1	..	..	..	..	..	1	..
Rohileund ..	Bareilly ..	1	1	..	..	..	..	..	..	1	1
	Moradabad ..	..	..	1	1	..	..	..	..	1	1
	Ranikhet ..	..	..	..	..	1	1	..	..	1	1
Meerut ..	Meerut ..	2	3	2	..	1	..	..	..	5	3
	Muttra ..	..	..	..	1	..	..	..	..	..	1
	Delhi ..	..	..	..	..	..	..	1	1	1	1
Sirhind ..	Umballa ..	..	..	1	..	1	1	..	..	2	1
	Jullundur ..	..	..	3	3	1	1	3	2	7	6
	Dagshai ..	..	..	1	..	..	..	..	..	1	..
	Subathu ..	..	..	..	..	..	..	1	1	1	1
Lahore ..	Meen Meer ..	..	..	2	1	2	1	1	1	5	3
	Lahore ..	..	..	1	..	..	..	..	..	1	..
	Amritsar ..	..	..	..	..	..	..	1	1	1	1
	Ferozepore ..	..	..	..	..	..	..	4	2	4	2
Rawal Pin d	Rawal Pindi ..	..	..	3	..	..	..	1	..	4	..
	Sialkot ..	..	..	..	..	2	1	2	1	4	2
	Attock ..	..	..	1	1	..	..	..	..	1	1
	Campbellpore ..	..	..	..	..	..	..	2	..	2	..
	Dera Ismail Khan ..	..	..	..	..	..	..	1	..	1	..
Peshawar ..	Peshawar ..	3	..	15	10	1	..	..	..	19	10
	Cherat ..	..	..	2	2	..	..	..	..	2	2
Depôt ..	Kasauli ..	..	..	1	1	..	..	..	..	1	1
	Murree ..	..	..	..	..	..	..	1	1	1	1
	Onthemarch, and Camp of Exercise ..	1	..	..	..	..	..	1	1	2	1
Total in the Command ..		15	7	52	28	16	7	28	15	111	57

No outbreak of enteric fever comparable to that which occurred in the 2nd Battalion of the 22nd Regiment at Hazaribagh in 1874, took place in the present year at any station in the Command. The nearest approach to epidemic prevalence was that at Peshawar, in the second quarter of the year, when 15 admissions for the disease, distributed between four separate corps, were returned, the greatest number in any corps being 8; the sporadic character of the attacks, and the wide diffusion of the disease, are the principal features exhibited in the Table. Admissions took place at more than half of the stations in the Command.

Simple Continued Fever, and Febricula.—For all the Divisions admissions for these two forms of fever are in the rate of 128·3 per 1,000 men, being 47·6 per 1,000 lower than in 1874; 16 deaths are returned as those due to simple continued fever, giving a proportion exceeding by a third that of the preceding year for the same disease; excepting two, all the deaths from simple continued fever, occurred at stations where enteric fever prevailed.

Paroxysmal Fevers.—The rate of admissions is higher for the Presidency, Lahore, and Peshawar Divisions, and for Troops on the March, but is lower for each of the other Divisions than in the preceding year. The excess in the instance of Peshawar is 581·3, and of Lahore 323·6 per 1,000 men; in both of these Divisions an epidemic character was impressed on the fevers of this nature, which contrasts with the feature of diminished prevalence in most of the other Divisions. A lower rate of mortality from paroxysmal fevers is associated with one of diminished prevalence in the Allahabad, Oudh, Rohilkund, Saugor, Gwalior, and Meerut Divisions, but with a lower rate of admissions, in Rawal Pindi, that of deaths is a little higher. In the Sirhind Division, the lower admission rate is associated with a much higher death rate; in the Lahore, with increased prevalence there was a decreased mortality; in the Presidency, and in the Peshawar Divisions, increased prevalence and greater mortality are united. The high death rate from paroxysmal fevers of the Lahore Division, was due to the occurrence of seven deaths in the 1st Battalion 1st Foot, from remittent fever, a disease which prevailed concomitantly with enteric fever.

Cholera.—In 1874 nine admissions for cholera were returned in the whole Command, of which two in the Lahore Division were doubtful cases, the other seven took place in the Presidency, Allahabad, and Oudh Divisions. In the present year the troops in the Command had exemption from cholera until the 30th of March, when one of a party of invalids encamped at Bareilly was attacked, and the following day another man of the same party was also seized with cholera. The next admission took place on the 2nd of April, at Cawnpore, a station about 250 miles south-west of Bareilly, and on the line of road through which the invalids, amongst whom the disease first appeared, must have passed, making it probable that Bareilly was merely the place at which the disease, acquired elsewhere, showed itself. Six admissions of men of the 73rd Foot, took place at Cawnpore in the first ten days of the outbreak in the regiment. The next admissions took place at Agra, Chunar, Muttra, and at Sitapur, on the 11th, 14th, 21st, and 29th of April respectively, one at each place, but from time to time, to the 3rd of May, there were other admissions at Muttra. On the 14th of May the disease caused two admissions at Roorkee, a station nearly 300 miles due north of Agra, and on the 18th of May a man of the 1st Battalion 5th Foot was attacked at Allahabad. A fortnight before this, however, an officer of the Royal Artillery had died of cholera at that place. For six weeks a lull in the spread of the disease now occurred. During this time, with the exception of Roorkee, where admissions (four in all) took place, no non-commissioned officers or men were attacked at any station in the Command, but at Dinapore the presence of the disease was indicated in the attack of a child on the 27th May. The disease re-appeared at the hill station of Kasauli, where, between the 4th of July and the 3rd of August, 17 of the men of the Convalescent Depot were attacked, and the families of the married soldiers there, also suffered severely. At Fort Kangra one admission took place on the 15th of the same month, and on the 24th a man of the 9th Lancers was attacked at Sialkot; this was the most northerly point at which cholera appeared amongst the European Troops during the year. At the same station, a man was attacked with what is returned as

Bengal.

simple cholera, in the third quarter of the year. The important stations of Lucknow, and Umballa, were both invaded on the same day, the 6th of August. The epidemic in the first named station lasted for ten weeks; the last admissions were in the week ending the 1st of October; its course was marked by a gradual increase of intensity, culminating in the sixth and seventh weeks, in which more than half of all the attacks occurred. No corps in the garrison had exemption from the disease, but its comparative prevalence was greatest in the Royal Artillery. The epidemic at Umballa presented important points of difference, its outbreak was more violent, it lasted only half the time—five weeks—its intensity was greatest at the outset, and it was confined to the men of one corps only, the 4th Battalion of the Rifle Brigade, the men of the Cavalry and of the Royal Artillery, remained free from the disease. Cholera appeared in the same month at the following stations:—Nowgong on the 8th, Gwalior on the 9th, at Bhagsu, and at Delhi, on the 14th, at Morar and at Ferozepore, on the 23rd; at the first named station the epidemic continued for nine weeks, the last admission being on the 17th of October. The attacks were most numerous in the first weeks of the period, all except two, were those of men of the 54th Regiment. At Ferozepore, the attacks were most numerous at the outset, and all but two occurred in the 2nd Battalion, 12th Foot. At Fyzabad, the outbreak amongst the men began in the second week of September, but previous to this there had been cases of cholera in the families of the soldiers; the disease prevailed for six weeks, its greatest intensity being in the fourth and fifth; all the attacks were in the 51st Foot. In point of time, the next outbreak was that on the 4th of September, at Meerut; the 12 admissions there were in the Royal Artillery, neither the Cavalry nor the Infantry regiment, quartered at this station suffered. The other stations, at which cases of cholera occurred, were Moradabad on the 5th, Fort Govindgarh on the 9th, and Amritsar on the 15th of September. In October, Meen Meer was the only station attacked, the first admission being on the 21st of that month. The last admission for cholera during the year, took place on the 11th of November, and was that of a man on the march in the Lahore Division.

The admissions and deaths from epidemic cholera at each station in the Command, in each week of the year, are shown in the following Table; 14 admissions and 6 deaths, returned as due to simple cholera, are not included :—

[illegible]

Rh
differ
except
Pasha
225, a
the P
respec

Divisi
the o
to 76'

So
is high
lower

A
disease

L
of dis
year,
of m
the S

rate
a ma
to 3:

sions
great
due
evid
ul

There
was
tane
infla
of d
of it

high
and
for t
is 2
to tl
lion,

this
Sau:
of tl
freq

this
Ray
rate

ord
and
nig
and
a fr
is t
low
fro
bot
tha
are

ARMY MEDICAL DEPARTMENT

rheumatism.—The rate of admissions for this disease is not materially different from the corresponding one of the preceding year for any Division except the Allahabad, the Sirhind, the Lahore, the Rawal Pindi, and the Peshawar. For the Allahabad, Rawal Pindi, and the Sirhind, the rate is 29·9, 37·5 and 37·5 per 1,000 men respectively in excess; for the Lahore, and for the Peshawar Divisions, there is a decrease of 34, and of 10·7 per 1,000 men respectively.

typhoid.—For the Oudh, the Sirhind, the Lahore, and the Peshawar Divisions, the rate of admissions exceeds that of the previous year; for each of the others the rate is lower. The excess in the instance of Oudh, amounts to 7 per 1,000 men.

typhoid, Phthisis, &c.—The rate of admissions for diseases of this group is higher for the Saugor, Rohilcund, Gwalior, and Lahore Divisions, but is lower for each of the others.

typhoid.—As in the preceding year, the highest rate of prevalence for this disease is that of Lahore.

LOCAL DISEASES.—Diseases of the Nervous System.—The rate of admissions for diseases in this order is higher for every Division than that of the preceding year except for the Allahabad, and the Sirhind, and for Depôts. The rate of mortality is higher for every Division, except for the Presidency and for the Sirhind; the first-named shows a reduction of 2·19 per 1,000 men on the rate of 1874. The increase in the rate of mortality in the other Divisions is material one in most instances, for Lahore and for Rawal Pindi it amounts to 84, and to 3·31 per 1,000 men respectively. Nearly one-half of the admissions in this order were due to neuralgia, the prevalence of which was highest in the Lahore, and in the Rawal Pindi Divisions. One death was due to hydrophobia, in connection with which it is stated, that there was no instance of the man's having been bitten by a dog for 6 years before his seizure. The deaths were due to tetanus, in one instance the irritation of a bed sore was the exciting cause, in another the disease supervened on the subcutaneous injection of 5 grains of the neutral of sulphate of quinine which caused inflammation and suppuration at the place of the puncture; in the third instance death from tetanus (that occurring in the 54th Foot) no mention is made in the report from that regiment.

Diseases of the Eye.—The rate of admissions for diseases of this order is higher than in the preceding year for the Saugor, Rohilcund, Gwalior, Meerut, Rawal Pindi Divisions, and lower for the others; the reduction on the rate for the Presidency is 26 per 1,000 men; the increase on that of the Rohilcund, is 5 per 1,000 men; probably both the decrease and the increase were due to transference from the first to the last-named Division of the 2nd Battalion, 22nd Foot, in which regiment conjunctivitis seems to be endemic.

Diseases of the Circulatory System.—The rate of prevalence of diseases of this order is higher than in the preceding year for the Presidency, Oudh, Saugor, and Gwalior Divisions, but is lower for the others; two-thirds of all the admissions for diseases of the heart were due to palpitation, the relative frequency of which is not in relation to locality.

Diseases of the Respiratory System.—The rate of prevalence of diseases of this order is higher than in the preceding year, for the Presidency, and for the Rawal Pindi Divisions, and lower for each of the others; the excess in the instance of the last-named is 67·5 per 1,000 men, or nearly one-half.

Diseases of the Digestive System.—The rate of prevalence of diseases of this order is higher than in the preceding year for the Rohilcund, Gwalior, Lahore, and the Rawal Pindi Divisions, but is lower for each of the others; with the exception of the rate of prevalence, there is a higher rate of mortality for the Gwalior, and for the Lahore Divisions. In Sirhind, a reduced rate of prevalence and a proportionally higher death-rate are associated; the death-rate for Peshawar, is the same in both years; for each of the other Divisions the death-rate is lower—in most instances very much lower—than that of 1874. Of the deaths in diseases of this order, one was due to tonsillitis, and another to quinsy—in the 81st Foot. In connection with these deaths it may be remarked that 2 admissions for diphtheria, are returned by this regiment. Four deaths returned as due to splenitis, all by the 62nd Regiment, and one death from

abscess of this organ is returned by the 85th Regiment, no remarks respecting it occur in the report.

Bengal.

The relative prevalence of, and the proportion of deaths from dyspepsia, dysentery, diarrhoea, and hepatitis, in the several Divisions, are shown in the first of the following Tables; in the second, the relation of the prevalence and fatality of the three last-named diseases to season are exhibited:—

Ratio per 1,000 of the Strength.

Divisions.	Presidency.		Allahabad.		Oudh.		Saugor.		Rohilcund.		Gwallior.		Meerut.	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Dysentery ...	32·6	·48	35·1	·30	24·8	·53	18·8	...	35·3	1·68	30·8	1·06	29·7	·61
Diarrhoea ...	42·7	...	64·0	...	67·6	...	35·9	·78	65·1	...	60·6	...	65·9	·20
Hepatitis and Abscess of the Liver }	32·6	2·40	42·9	2·70	33·8	1·58	29·7	...	34·5	2·10	56·9	1·59	39·7	1·23
Total ...	107·9	2·88	142·0	3·00	126·2	2·11	94·4	·78	134·9	3·78	148·3	2·65	135·3	2·04
Dyspepsia ...	44·6	...	36·9	...	37·5	...	36·7	...	40·3	...	42·4	...	47·5	...

Divisions.	Sirhind.		Lahore.		Rawal Pindi.		Peshawar.		Depôts.		Troops on the March.		Camp of Exercise.	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Dysentery ...	13·7	·29	24·0	1·16	19·1	·55	26·4	·41	46·0	·61	22·2	·44	58·6	...
Diarrhoea ...	53·0	...	96·5	·29	63·2	...	37·8	...	110·4	...	33·7	...	43·9	...
Hepatitis and Abscess of the Liver }	23·7	·86	27·5	1·16	29·8	1·09	33·7	·41	88·3	4·29	23·5	·44	16·7	...
Total ...	90·4	1·15	148·0	2·61	112·1	1·64	97·9	·82	244·7	4·90	79·4	·88	119·2	...
Dyspepsia ...	36·8	...	42·2	...	51·1	...	19·1	...	34·3	...	7·5	...	6·3	...

Bengal.

	Hepatitis, including Abscess of the Liver.				Dysentery.				Diarrhœa.				Total.			
	Number.		Annual Ratio per 1,000 of Strength.		Number.		Annual Ratio per 1,000 of Strength.		Number.		Annual Ratio per 1,000 of Strength.		Number.		Annual Ratio per 1,000 of Strength.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Ist Quarter	239	10	6·4	·27	146	2	3·9	·05	267	·	7·2	·	652	12	17·5	·32
II nd "	360	12	9·7	·32	227	5	6·1	·13	554	1	14·9	·03	1,141	18	30·7	·48
III rd "	394	15	10·6	·40	314	4	8·4	·11	970	·	26·1	·	1,678	19	45·1	·51
IV th "	342	17	9·2	·46	322	12	8·7	·32	526	2	14·1	·05	1,190	31	32·0	·83

Diseases of the Urinary System.—The rate of prevalence of diseases of this order is lower for every Division except the Oudh, Saugor, and the Rawal Pindi. One of the deaths is returned as due to Addison's disease; no remarks respecting it are made in the report. One death from suppurative nephritis is returned, and one from abscess of the kidney; respecting the first no remarks are made, the other was a consequence of stricture.

Diseases of the Cutaneous System.—The rate of admissions for diseases of this order is higher than in the preceding year for the Presidency, Rohilcund, Saugor, Gwalior, and Lahore Divisions, and lower for each of the remaining ones.

There were 27 admissions for the Delhi boil, or ulcer; the greatest number returned by any corps is 11 by the 92nd Regiment, stationed at Mooltan, and having a detachment at Dera Ismail Khan. The following remarks respecting the prevalence of this form of disease are taken from the Report of the Medical Officer at the last-named station:—"The ulcer called 'Delhi sore' was the "the only skin disease prevalent among the men of the detachment during "the past year; it attacked 22 per cent. of the strength, but only 4 per cent. "required admission into hospital. . . . The disease made its appearance "in the month of June, and prevailed during the four succeeding months; "it appeared to be a purely local affection, and it attacked indiscriminately "the healthy and the unhealthy, the young, and the middle-aged.

CONDITIONS, &c.—General Debility.—The rate of admissions for debility is higher for every Division, except for the Presidency, the Meerut, and the Peshawar; for the last-named the reduction amounts to more than one-half.

POISONS.—All the admissions in this order, were due to alcohol poisoning, or to delirium tremens, excepting two, which were caused—one by lead poisoning, the other (not ending fatally) by snake bite. The proportional prevalence of diseases of this order has other relations than those of locality.

The admissions and deaths in each corps which served in the Bengal Command are shown in the following Table:—

Bengal,

Regiments.	Years of service in the Command.	Average Annual Strength.	Admitted into Hospital.	Deaths.		Invalided.	Constantly Sick.	Ratio per 1,000 of Strength.				Average sick time to each soldier.		Average duration of each case of sickness.	Stations during the Year.
				In India.	Of Invalids.			Admitted.	Died.	Invalided.	Constantly Sick.	Days.	Days.		
4th Hussars ..	8	452	441	1	..	26	17.73	975.7	2.21	57.52	39.22	14.32	14.71		Rawal Pindi, 12 months; det. in Camp and on the March.
9th Lancers ..	..	459	691	11	..	23	32.73	1502.0	23.97	50.13	71.31	26.03	17.28		Sialkot 10½; on the March ¼.
10th Hussars ..	3	462	379	12	..	16	21.34	820.3	25.97	34.63	52.08	19.23	23.44		Muttra 10½; on the March and at Camp of Exercise 1½.
11th " ..	9	447	499	8	1	15	21.55	1116.3	20.13	33.56	48.21	17.60	15.76		Umballa 11; Camp of Exercise 1.
13th " ..	2	454	532	10	1	29	37.29	1171.8	24.23	63.88	82.14	29.98	25.58		Lucknow 10½; Delhi 1½.
15th " ..	3	472	1,075	6	..	18	32.90	2277.5	12.73	38.13	69.70	25.44	11.17		Meerut 10½; Camp 1½.
Total ..	..	2,746	3,617	48	2	127	166.54	1317.2	18.21	46.21	60.65	22.14	16.80		
Hd.-Qr. and A Batt., A Brig., R.H.A.	10	165	157	..	..	9	7.59	951.5	..	54.54	46.00	16.79	17.45		Umballa 10½; Camp 1½.
B Batt., A Brig., R.H.A.	10	142	225	10	..	3	7.63	1584.5	70.42	21.12	53.73	19.61	12.38		Lucknow 12.
C " " "	10	156	183	2	..	6	7.00	1173.1	12.82	38.46	44.87	16.38	13.96		Umballa 10½; Camp 1½.
D " " "	10	149	166	3	..	4	8.23	1114.1	20.13	26.85	55.24	20.16	18.10		Sialkot 10; Meerut ½; Camp 1½.
E " " "	10	149	183	2	..	10	7.46	1228.2	13.42	67.11	50.07	18.28	14.88		Morar, 12.
A Batt., C Brig., R.H.A.	3	168	347	1	..	7	8.62	2065.5	5.95	41.67	51.31	18.73	9.07		Meerut, 10½; Camp and on the March, 1½.
A " " "	..	147	266	3	..	7	7.83	1809.5	20.41	47.62	53.27	19.44	10.74		Meen Meer, 12.
B " " "	..	152	146	1	..	2	5.09	960.5	6.58	13.16	33.49	12.22	12.72		Campbellpore, 10½; Peshawar, ½; Camp, 1.

Hd.-Qrs. and C Batt., F Brig, R.H.A.	..	157	428	1	..	7	7-74	2726-1	6-37	44-59	49-20	17-99	6-60	Peshawar, 11½; deta. at Murree and at Cherat; on the March, ½.
E Batt., F Brig, R.H.A.	..	145	258	4	..	9	8-42	1779-2	27-59	62-07	58-07	21-19	11-91	Meerut, 11; on the March, 1.
F " " "	..	150	147	..	..	13	5-13	980-0	..	86-66	34-20	12-48	12-74	Rawal Pindi, 12.
3rd Batt., 5th Brig, R.A.	8	74	79	2	..	2	5-32	1067-6	27-03	27-03	71-90	26-24	24-58	Calcutta 10½; det. at Calcutta, 1½.
A " 8th Hd.-Qrs. and B Batt., 8th Brig, R.A.	9	160	197	1	..	5	9-84	1231-3	6-25	31-25	61-50	22-44	18-23	Jullundur, 10½; Camp, 1½.
C Batt., 8th Brig, R.A.	9	150	210	3	..	5	7-86	1400-0	20-00	33-33	52-40	19-12	13-66	Meerut, 11½; Camp, ½.
D " " "	9	147	275	3	..	5	10-83	1870-7	20-40	34-01	73-67	26-89	14-37	Mooltan, 12.
E " " "	9	150	217	5	..	6	8-35	1446-6	33-33	40-00	55-66	20-32	14-04	Meen Meer, 12.
F " " "	9	138	233	3	..	11	8-74	1688-4	21-74	79-71	63-33	23-12	13-69	Ferozepore, 12.
G " " "	9	153	226	7	..	4	8-14	1477-1	45-75	26-14	53-20	19-42	13-15	Meerut, 11½; Camp, ½.
H " " "	9	151	349	2	..	10	6-21	2311-2	13-25	66-23	41-13	15-01	6-49	Peshawar, 12.
H " " "	9	150	200	..	..	11	8-68	1833-3	..	73-33	57-87	21-12	15-84	Rawal Pindi, 12.
Hd.-Qrs. and A Batt., 11th Brig, R.A.	2	165	330	5	..	7	12-37	2054-5	30-30	42-42	74-97	27-86	13-32	Barrackpore, 12; det. at Calcutta.
B Batt., 11th Brig, R.A.	..	160	319	5	..	11	12-11	1993-8	31-25	68-75	75-69	27-63	13-85	Barrackpore, 12; det. at Calcutta.
C " " "	..	162	242	3	..	5	12-91	1493-8	18-51	30-86	79-69	29-09	19-47	Dinapore, 12.
D " " "	..	167	249	6	..	5	10-51	1491-0	35-93	23-95	62-93	22-97	15-41	Benares, 12.
E " " "	..	166	310	1	..	3	17-66	1867-5	6-02	18-07	106-39	38-83	20-79	Allahabad, 12.
F " " "	..	148	278	3	..	5	8-55	1878-4	20-27	33-78	57-77	21-09	11-23	Saugor, 12.
G " " "	..	160	226	4	..	..	9-1	412-5	25-00	..	57-44	20-96	14-84	Nowgong, 12.
1st Batt., 13th Brig, R.A.	4	89	78	..	..	..	2-65	876-4	..	..	29-78	10-87	12-40	Rawal Pindi, 3½; Khyra Gully, 6½;
Hd.-Qrs. and 2nd Batt., 13th Brig, R.A.	..	94	168	1	..	5	4-07	1787-2	10-64	53-19	43-20	15-80	8-84	Fort Govindgarh, ½.
4th " " "	..	80	173	2	..	8	5-00	2162-5	25-00	100-00	62-50	22-81	10-55	Fort Attock, 12.
5th " " "	..	82	147	2	..	8	8-51	3012-2	24-39	97-56	103-78	37-88	12-58	Peshawar, 12.
6th " " "	..	74	151	2	..	6	4-19	2040-5	27-03	81-08	56-62	20-64	10-13	Ferozepore, 12.
7th " " "	..	92	87	2	..	4	5-03	946-6	21-74	43-48	54-67	19-95	21-13	Jutogh, 10½; Camp, 1½.
7th " " "	..	83	47	..	..	..	3	566-3	..	..	27-47	10-78	18-48	Darjeeling, 10½; Calcutta, 1½.

Regiments.	Years of service in the Command.	Average Annual Strength.	Admitted into Hospital.	Deaths.		Invalided.	Constantly Sick.	Ratio per 1,000 of Strength.				Average sick time to each soldier.	Average duration of each case of sickness.	Stations during the Year.
				In India.	Of Invalids.			Admitted.	Died.	Invalided.	Constantly Sick.			
A Batt., 19th Brig., R.A.	..	161	213	1	..	7	9.51	1322.9	6.21	43.48	59.07	Days. 21.56	Agra, 12.	
B " " "	..	163	220	3	..	15	8.77	1349.7	18.40	92.02	53.80	Days. 16.29	Morar, 12 months.	
C " " "	..	148	183	1	..	4	6.66	1236.5	6.76	27.03	45.00	Days. 19.64	Bareilly, 10 $\frac{3}{4}$; Camp, 1 $\frac{1}{4}$.	
D " " "	..	151	178	3	..	5	10.06	1178.8	19.87	33.11	66.62	Days. 13.28	Fyzabad, 12.	
E " " "	..	145	149	3	..	2	7.63	1028.0	20.69	13.78	52.62	Days. 24.32	Sitapur, 12.	
F " " "	..	155	235	3	..	3	8.34	1516.1	19.35	19.35	53.81	Days. 19.64	Cawnpore, 10 $\frac{1}{2}$; Camp, 1 $\frac{1}{2}$.	
Hd.-Qrs. and G Batt., 19th Brig., R.A.	..	168	214	7	..	1	9.36	1273.8	41.67	5.95	55.71	Days. 15.96	Lucknow, 12.	
Hd.-Qrs. and 1st Batt., 23rd Brig., R.A.	..	95	127	2	..	..	4.67	1336.9	21.05	..	49.16	Days. 17.90	Morar, 10 $\frac{3}{4}$; Camp, 1 $\frac{1}{4}$.
2nd Batt., 23rd Brig., R.A.	..	91	151	6	..	1	7.34	1659.3	65.93	10.99	80.66	Days. 29.44	Delhi, 11 $\frac{1}{2}$; on the March, $\frac{1}{2}$.	
3rd " " "	..	89	201	1	..	3	4.46	2258.4	11.24	33.71	50.12	Days. 18.29	Fort Govindgarh, 11 $\frac{1}{2}$; on the March, $\frac{1}{2}$.	
4th " " "	..	87	115	1	..	4	5.57	1321.9	11.49	45.98	64.04	Days. 23.37	Fortress Gwalior, 11 $\frac{1}{2}$; on the March, $\frac{1}{2}$.	
5th " " "	..	82	98	2	..	..	4.07	1195.1	24.37	..	49.63	Days. 18.12	Agra, 11 $\frac{1}{2}$; on the March, $\frac{1}{2}$.
6th " " "	..	94	108	..	..	..	7.25	1149.0	..	..	77.13	Days. 28.15	Allahabad, 11 $\frac{1}{2}$; on the March, $\frac{1}{2}$.
7th " " "	..	89	115	5	..	..	4.56	1292.1	56.18	..	51.23	Days. 18.70	Lucknow, 11 $\frac{1}{2}$; on the March, $\frac{1}{2}$.
* Invalids of the above Brigades.	9	..	..	..	..	..	..	Days. ..	..
Total	..	6,393	9,713	127	9	247	368.09	1519.3	21.27	38.64	57.58	Days. 21.01	13.83	
41st Company, Royal Engineers	..	58	32	3	..	1	1.04	551.7	51.72	17.24	17.92	Days. 6.54	11.87	

* The records do not show to which Batteries these men belonged, the Brigades were 8th (3), 11th (2), 13th (1), 21st (2), not stated (1).

2nd Batt., 1st Foot	..	9	915	2,374	33	..	80	76·62	2594·5	35·98	87·43	88·74	30·56	11·78	Ranikhet, ½; Meen Meer, 9½; on the March, 2; det. at Fort Lahore.
1st " 3rd "	..	9	841	693	8	5	45	38·93	824·0	15·46	53·51	40·34	14·73	17·86	Calcutta, 10½.
1st " 5th "	..	9	889	947	19	..	49	44·63	1065·2	21·37	55·12	50·20	18·32	17·20	Allahabad, 12.
1st " 6th "	..	7	918	1,650	23	1	50	71·63	1797·4	26·14	54·46	78·03	28·48	15·85	Siakot, 12; det. at Amritsar, Fort Govindghar, and Ranikhet.
1st " 8th "	..	7	889	844	2	1	49	35·79	949·4	3·37	55·12	40·26	14·69	15·48	Chakrata, 1½; Camp, 1½.
2nd " 9th "	..	1	861	1,076	15	..	23	40·72	1249·7	17·42	26·71	47·30	17·26	13·81	Rawal Pindi, 12; det. at Fort Attock.
1st " 11th "	..	11	876	844	6	..	31	37·44	963·5	6·85	35·39	42·74	15·60	16·19	Jubbulpore, 12; det. at Saugor.
2nd " 12th "	..	11	872	693	17	3	21	35·56	794·7	22·94	24·08	40·78	14·88	18·73	Kerozepore, 12.
Hd.-Qrs. and 1st Batt., 14th Foot.	..	7	{ 471	552	6	2	27	34·63	1172·0	16·98	57·32	73·52	26·84	22·90	Sitapur, 12.
Wing, 1st Batt., 14th Foot.	..	{ 7	{ 377	499	7	..	17	35·59	1323·6	18·57	45·09	94·40	34·46	26·03	Benares, 12.
1st Batt., 17th Foot	..	5	884	2,175	10	1	39	60·10	2460·4	12·44	44·12	67·99	24·81	10·08	Peshawar, 12; det. at Cherat.
1st " 18th "	..	1	908	847	11	..	28	37·78	932·8	12·11	30·84	41·61	15·19	16·28	Barceilly, 12; det. at Moradabad and at Ranikhet.
2nd " 19th "	..	12	897	960	9	2	34	51·56	1070·2	12·26	37·90	57·48	20·98	19·60	Barceilly, 2; Ranikhet, 9½; on the March, ¾.
Hd.-Qrs. and 2nd Batt., 22nd Foot.	..	{ 2	{ 556	409	3	..	7	21·42	735·6	5·39	12·59	38·52	14·06	19·11	Shahjehanpur, 2½; Ranikhet, 8½; on the March.
Wing, 2nd Batt., 22nd Foot.	..	{ 373	{ 320	320	11	..	14	18·47	857·9	29·49	37·53	49·52	18·08	21·07	Shahjehanpur, 12.
1st Batt., 25th Foot	..	..	107	199	1	..	..	4·61	1859·8	9·84	..	43·08	15·72	8·45	Fyzabad, 1½; on the March.
(From 15th Nov. to 31st Dec.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2nd Foot Batt., 25th "	..	12	63	31	1	1	..	1·87	492·1	31·75	..	29·68	10·83	22·02	Jubbulpore, ¾; on the March.
(From 1st Jan. to 7th Feb.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34th Foot	..	..	94	115	..	..	..	2·70	1223·4	..	..	28·72	10·48	8·57	Ferozepore, 1½; on the March.
(From 2nd Nov. to 31st Dec.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
36th Foot	..	12	676	588	10	1	8	27·45	869·8	16·27	11·82	40·61	14·82	17·04	Meen Meer, 2½; Subathu, 8½; det. at Fort Lahore and Umballa; on the March.
(From 1st Jan. to 13th Nov.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Bengal.

Regiments.	Years of service in the Command.	Average Annual Strength.	Admitted into Hospital.	Deaths.		Invalided.	Constantly Sick.	Ratio per 1,000 of Strength.				Average sick time to each soldier.	Average duration of each case of sickness.	Stations during the Year.
				In India.	Of Invalids.			Admitted.	Died.	Invalided.	Constantly Sick.			
37th Foot (From 1st Jan. to 1st March.)	12	70	44	2	..	1	3.00	628.6	28.57	14.28	42.86	Days. 15.64	24.90	On the March.
39th Foot	6	930	1,217	7	1	11	46.00	1308.6	8.60	11.83	49.46	18.05	13.80	Nowshera, $\frac{1}{2}$ month; Dagshai, 9 months; Camp, $1\frac{1}{4}$ months; det. at Fort Attock.
40th "	3	899	1,154	10	..	43	53.67	1283.6	11.11	47.83	59.70	21.72	16.98	Lucknow, $10\frac{1}{2}$; Dum Dum, $\frac{1}{2}$; Calcutta, $1\frac{1}{4}$; det. at Barrackpore.
51st "	3	896	1,175	18	..	52	54.42	1311.3	20.09	58.03	60.74	22.17	16.90	Fyzabad, 10; on the March.
54th "	4	885	885	26	1	42	68.21	1000.0	30.51	47.46	77.07	28.13	28.13	Morar, 12; det. at Fortess Gwalior.
Hd.-Qrs., 55th Foot	11	{ 405 431 }	{ 405 748 }	{ 12 10 }	{ }	{ 56 56 }	{ 18.87 26.41 }	{ 1135.8 1735.5 }	{ 29.64 23.20 }	{ 67.39 61.28 }	{ 46.59 58.79 }	{ 17.01 22.31 }	{ 14.97 12.89 }	Camp of Exercise, $\frac{1}{2}$; Roorkee, $10\frac{1}{4}$; Delhi, $\frac{1}{4}$; on the March.
Wing "														
59th Foot	1	940	961	11	2	54	55.26	1022.3	13.83	57.45	58.79	21.46	20.99	Agra, 12.
2nd Batt., 60th Foot	8	907	687	6	2	35	28.10	757.4	8.82	38.59	30.98	11.28	14.93	Rawal Pindi, $2\frac{1}{2}$; Koldunah, $6\frac{1}{2}$; Camp of Exercise and on the March; det. at Chungla Gully, Kalabagh, and Baragully.

REPORT FOR 1875.

163

Bengal.

62nd Foot	..	7	876	687	12	..	10	32-38	795-7	13-70	11-41	36-96	13-19	16-96	Dum Dum, 10 $\frac{1}{2}$; Camp of Exercise and on the March, 1 $\frac{1}{2}$; dets. at Barrackpore and at Hazaribagh.
63rd "	..	2	858	1,425	19	..	37	41-02	1660-9	22-14	43-12	47-82	17-45	10-51	Jhansi, 12; det. at Fortress Gwalior and at Nowgong.
65th "	..	4	906	749	15	..	25	48-08	1267-7	16-56	27-59	53-07	19-37	23-43	Lucknow, 12.
70th "	..	4	883	3,002	21	..	42	88-48	3399-8	23-72	47-56	91-54	34-51	10-15	Rawal Pindi, $\frac{1}{2}$; Peshawar, 11 $\frac{1}{2}$; dets. at Cherat and at Nowshera.
72nd "	..	4	858	1,600	7	..	38	41-45	1864-8	8-16	44-29	48-31	17-03	9-45	Peshawar, $\frac{3}{4}$; Nowshera, 2; Cherat, 9; dets. at Fort Attock, Amritsar, and Sialkot.
73rd "	..	2	892	1,086	21	1	27	63-21	1217-5	24-66	30-27	70-86	25-86	21-24	Cawnpore, 10 $\frac{1}{2}$; on the March and in Camp of Exercise, 1 $\frac{1}{2}$.
81st "	..	1	869	938	20	..	14	44-90	1079-4	23-01	16-11	51-67	18-86	17-47	Jullundur, 12; dets. at Fort Kangra and at Bhagsu.
85th "	..	8	859	1,256	12	2	43	55-26	1462-2	16-30	50-06	64-23	23-48	16-06	Meerut, 11 $\frac{1}{2}$; Camp of Exercise, $\frac{3}{4}$; dets. at Fategarh and at Lucknow.
92nd "	..	8	876	1,609	9	..	39	51-62	1836-7	10-27	44-52	58-93	21-51	11-71	Mooltan, 12; det. at Dea Ismail Khan.
109th "	"	..	929	1,204	11	2	29	53-47	1296-1	13-00	31-21	57-55	21-01	16-21	Dinapore, 12; dets. at Chunar and at Hazaribagh.
4th Batt., Rifle Brig.	..	2	935	1,041	30	1	28	46-09	1113-4	33-15	29-95	49-25	17-09	16-16	Umbaila, 9 $\frac{3}{4}$; Delhi, $\frac{3}{4}$; Camp, 1 $\frac{1}{2}$.
Total	..	..	23,571	37,754	471	29	1146	1587-40	1321-4	17-50	40-18	55-56	20-28	15-34	

Bengal.

In the following Table, for the purpose of contrasting the results as regards health in relation to length of residence in the Command, the various corps are grouped according to their periods of service in it :—

Corps.	Year of Service in the Command.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average number of Constantly Sick.	Rate per 1,000 of Annual Strength.				Average sick time to each Soldier.	Average duration of each case of Sickness.
							Admitted.	Died.	Invalided.	Constantly Sick.		
9th Lancers... 1st Battalion, 25th Foot ... 34th Foot ...	Under 1 year	660	1,005	12	23	40·04	1522·7	18·18	34·85	60·67	Days. 22·14	Days. 14·54
2nd Battalion, 9th Foot ... 1st " 18th " ... 59th Foot ... 81st " ...	1 year	3,578	3,822	59	119	178·66	1068·2	16·49	33·26	49·93	18·23	17·06
13th Hussars... 11th Brig., Royal Artillery ... 2nd Battalion, 22nd Foot... 63rd Foot ... 73rd " ... 4th Battn. Rifle Brigade...	2 years	5,196	6,776	126	177	310·80	1304·1	24·25	34·06	59·81	21·83	16·74
10th Hussars... 15th " ... A Battery, C Brig., R.H.A... 40th Foot ... 51st " ...	3 years	2,897	4,130	57	136	171·95	1425·6	19·68	46·95	59·35	21·66	15·19
13th Brig., Royal Artillery 54th Foot ... 65th " ... 70th " ... 72nd " ...	4 years	4,126	7,187	80	178	273·05	1741·9	19·39	43·14	66·18	24·15	13·87
1st Battalion, 17th Foot ...	5 years	884	2,175	11	39	60·10	2460·4	12·44	44·12	67·99	24·81	10·08
39th Foot ...	6 years	930	1,217	8	11	46·00	1303·6	8·60	11·83	49·46	13·05	13·00
1st Battalion, 6th Foot ... 1st " 8th " ... 1st " 14th " ... 62nd Foot ...	7 years	3,531	4,242	54	153	210·92	1201·3	15·29	43·33	59·73	21·80	18·15
4th Hussars... 3rd Battery, 5th Brig. R.A. 2nd Battalion, 60th Foot... 85th Foot ... 92nd " ...	8 years	3,168	4,072	34	145	158·03	1285·4	10·73	45·77	49·88	18·21	14·16
11th Hussars... 8th Brig., Royal Artillery 2nd Battalion, 1st Foot ... 1st " 3rd " ... 1st " 5th " ...	9 years	4,291	6,420	101	246	245·38	1496·2	23·54	57·33	57·19	20·88	13·95
A Brig., R. Horse Artillery F " " " " 19th Brig., Royal Artillery 23rd " " " " Royal Engineers ... 1st Battalion, 11th Foot... 2nd " 12th " ... 2nd " 19th " ... 2nd " 25th " ... 34th Foot ... 36th " ... 37th " ... 55th " ... 09th " ...	10 years and over	8,507	10,070	157	296	427·05	1183·7	18·45	31·79	50·20	18·32	15·48

In the Table no constant specific differences are seen in the results for the various groups; this may perhaps be owing to the influence of the epidemic prevalence of cholera as regards the death-rate, and to the epidemic prevalence of paroxysmal fevers (in two Divisions of the Command) as regards the amount of sickness. The necessity for taking longer periods of time than one year, in order to make a safe induction with respect to the relative liability to disease, of regiments of short and those of long service in the Command, is apparent.

Officers.

In a strength of 1,349 officers, there were 1,037 cases of sickness, and 18 deaths in the Command, being in the rates of 7·687, and of 13·34 per 1,000 of the strength respectively.

GENERAL DISEASES.—The proportion of attacks of diseases of this class is 275·7 per 1,000 of the strength, that of the *febrile group*, of the class being 226·1, and that of the *constitutional group*, 49·6 per 1,000. All the deaths (4) in the class were from diseases of the febrile group.

Eruptive Fevers.—Two of the three attacks were of small-pox.

Continued Fevers—*Enteric Fever*.—One (fatal) attack of this form of fever is returned. *Simple Continued Fevers*, caused 83, and *Febricula*, 58 attacks. *Paroxysmal Fevers*, caused 152 attacks (being in the rate of 112·7 per 1,000 of the strength against 361·7 in the case of the non-commissioned officers and men); one death from remittent fever is returned. *Cholera*.—Only two attacks of this disease occurred, giving a proportion of 1·48 per 1,000 of the strength (the rate of admissions of the men for cholera is 5·5 per 1,000); both of the attacks were fatal.

Diseases of the Nervous System.—Encephalitis caused two, apoplexy one, and sunstroke, two admissions.

Diseases of the Respiratory System, caused 39 attacks; two of them (one from bronchitis, and one from pleurisy) were fatal.

Diseases of the Digestive System.—The rate of attacks is 179·4 per 1,000 of the strength (the admission-rate of the men for diseases of this order being 222·6 per 1,000). The death-rate is 3·76 per 1,000 (against 3·15 per 1,000 for the men). The fatal illnesses were dysentery (1), hepatitis (3), peritonitis (1).

POISONS.—There were three attacks of diseases in this order, one of them being fatal.

INJURIES.—*Accidental.*—Two deaths followed on accidental injuries, one being due to a fracture, one to gunshot. *Self-inflicted.*—The suicidal death was by gunshot.

Women.

The average annual strength of the wives of the non-commissioned officers and men was 3,768; the admissions into hospital were 3,848, and the deaths (those in the Command only) were 107, being in the rates of 1021·2 and of 28·39 per 1,000 of the strength respectively.

GENERAL DISEASES.—*Diseases of the Febrile Group*, caused 1,330 admissions.

Eruptive Fevers.—There were 2 admissions for small-pox, 7 for measles, and 2 for dengue.

Continued Fevers.—Enteric fever, caused 4 admissions (and 3 deaths); simple continued fever, 285 admissions (and 5 deaths); febricula, 119 admissions.

Paroxysmal Fevers, caused 856 admissions; 2 deaths are returned as due to ague, and 10 to remittent fever.

Cholera.—For this disease there were 41 admissions; 26 of the attacks ended fatally; the admission rate (10·9 per 1,000 of the strength) is nearly double that for the non-commissioned officers and men, in the Command.

Diseases of the Constitutional Group.—For scrofula, and for phthisis, there were 41 admissions; 8 deaths were due to phthisis.

Diseases of the Nervous System.—Sunstroke caused 10 admissions; 4 of the attacks were fatal. Tetanus caused 1 admission (fatal). There were 3 admissions for different forms of mental disease.

Diseases of the Eye.—All the admissions in this order excepting 12 were for conjunctivitis, the rate of prevalence of which is 56·2 per 1,000 of the strength, being nearly threefold higher than that for the men in the Command.

Bengal.

Diseases of the Circulatory System.—One death was due to valve disease, and 1 to fatty degeneration of the heart.

Diseases of the Respiratory System.—Two deaths were due to bronchitis, and 3 to pneumonia.

Diseases of the Digestive System.—The rate of admissions is 208·3, and that of deaths is 5·57 per 1,000 of the strength. Compared with the corresponding rates for the non-commissioned officers and men, the first is 14·3 per 1,000 lower, the last is 2·42 higher; this excess in the rate of mortality for diseases of the digestive system, may perhaps be accounted for by the fact that the wives of soldiers are comparatively seldom invalidated. There were 76 admissions for abortion. Three deaths were consequent on the puerperal state; 8 deaths occurred during child-birth, of which there were 912 cases (not included amongst the admissions for disease).

Under the head of *General Debility*, 771 admissions are returned, with 4 deaths.

Children.

The average annual strength of the children of the non-commissioned officers and men was 7,141, amongst whom there were 5,791 admissions into hospital, and (in the Command) 520 deaths, being in the rate of 810·9 and of 72·82 per 1,000 of the strength respectively (the death-rate for persons presumably of the same ages in England, on an average of 10 years is 27·22 per 1,000).

The admissions for diseases of the *febrile group* (1,914) are in the rate of 268·3, and the deaths (131) in that of 18·34 per 1,000 of the strength.

Eruptive Fevers.—For small-pox, there were 2 admissions, for chicken-pox 36, for measles 404 (36 of the attacks being fatal), for dengue 3.

Continued Fevers.—Only 1 admission for enteric fever is returned; for simple continued fever there were 280 admissions (9 of the attacks being fatal); for febricula 163 admissions.

Paroxysmal Fevers.—For ague there were 686 admissions (2 deaths); for remittent fever 134 admissions (26 deaths).

Cholera.—This disease caused 67 admissions, and 51 deaths, being in the proportions of 9·4, and of 7·14 per 1,000 of the strength respectively.

Other Diseases.—Diphtheria caused 1 admission, and 1 death. Whooping-cough caused 110 admissions and 5 deaths.

Diseases of the Constitutional Group.—The admissions for diseases of this group (169) are in the rate of 23·7, the deaths (18) in that of 2·52 per 1,000 of the strength.

Scrofula and Phthisis.—These diseases caused 47 admissions and 16 deaths. Only 4 admissions are returned for pulmonary consumption; no death was due to this disease, but for mesenteric disease there were 24 admissions and 10 deaths. One death was also due to tubercular meningitis.

Anæmia caused 105 admissions and 2 deaths.

Diseases of the Nervous System.—There were 14 admissions and 7 deaths from encephalitis; sunstroke caused 17 admissions and 11 deaths; hydrocephalus caused 3 deaths; tetanus caused 2 admissions and 2 deaths; convulsions caused 101 admissions and 75 deaths.

Diseases of the Eye.—The admissions for conjunctivitis (1,034) are in the rate of 144·8 per 1,000 of the strength.

Diseases of the Respiratory System.—Croup caused 46 admissions and 9 deaths; bronchitis caused 266 admissions and 27 deaths; pneumonia caused 14 admissions and 4 deaths.

Diseases of the Digestive System. caused 1,357 admissions and 174 deaths, being in the rates of 190·3, and of 24·37 per 1,000 of the strength respectively. 226 of the admissions in this order, are returned as due to teething (with 40 deaths); tonsillitis caused 1 death, enteritis caused 2 admissions, both of the cases were fatal; dysentery caused 159 admissions and 19 deaths; for diarrhoea 785 admissions and 107 deaths are returned; only 8 admissions for hepatitis took place; for jaundice there were 12 admissions (2 deaths); the admissions for general debility were 503, and the deaths for this condition were 46 in number.

II.—MADRAS.

STATISTICAL REPORT.

THE average annual strength of the European troops serving in the Command was 11,233 non-commissioned officers and men, the admissions into hospital among them were 12,067, the deaths, including those of invalids on the voyage and after arrival at home, were 178, the average number of daily sick in hospital was 619·25. The proportions given by these numbers are—for admissions, 1074·2, for deaths, 15·83, and for daily sick 55·13 per 1,000 of the strength. Compared with the preceding year, the proportion of admissions is 47·7 per 1,000 lower, whilst that of deaths is 2·10 per 1000 higher; the average number of daily sick is fractionally less.

The following Table shows the admissions and deaths in the different classes orders of diseases:—

Orders.	Diseases.	Strength, 11,233.				Ratio per 1,000 of Mean Strength.			
		Admitted.	Deaths.			1875.		1869-74.	
			In the Command.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
	I. General Diseases.								
1	Febrile Group ..	2,234	16	..	16	198·8	1·42	242·2	4·02
2	Constitutional „ ..	1,718	20	7	27	152·9	2·40	160·3	2·02
	II. Local Diseases.								
	<i>Diseases of the—</i>								
1	Nervous System ..	150	12	..	12	13·3	1·07	20·8	2·09
2	Eye	157	..	..	..	14·0	..	20·7	..
3	Ear	74	..	..	..	6·6	..	9·9	..
4	Nose .. ..	..	..	..	..	..	..	·5	..
5	Circulatory System ..	235	22	1	23	20·9	2·05	18·7	1·99
6	Absorbent	272	..	..	..	24·2	..	25·5	..
8	Respiratory	412	4	2	6	36·7	·53	44·7	·56
9	Digestive	3,308	57	3	60	294·8	5·34	348·3	7·47
10	Urinary	1,008	1	..	1	89·7	·09	78·9	·18
11	Generative	172	..	..	..	15·3	..	15·4	..
12	Organs of Locomotion	44	..	..	..	3·9	..	5·5	·05
13	Cellular Tissue ..	168	..	1	1	14·9	·09	17·5	..
14	Cutaneous System ..	718	..	..	..	63·9	..	87·3	..
	III. Conditions, &c.								
	Debility	293	..	1	1	26·1	·09	38·5	·06
	IV. Poisons	64	7	..	7	5·7	·62	9·4	·47
	V. Injuries.								
2	Accidental	1,009	15	..	15	89·8	1·33	105·8	1·14
3	Homicidal .. ..	..	..	..	..	..	..	·1	·06
4	Self-inflicted	4	8	..	8	·3	·71	·2	·47
5	Judicial .. ..	..	1	..	1	..	·09	..	·03
	VI. Surgical Operations	12	..	..	..	1·1	..	·3	..
	Cause unknown .. ..	..	..	..	..	..	..	..	·02
	No appreciable disease	15	..	..	..	1·3	..	·9	..
	Total	12,067	163	15	178	1074·2	15·83	1251·4	20·63
	Average of 10 years, } 1865-74 .. ..	..	..	..	..	1326·0	21·85	..	..

Madras.

GENERAL DISEASES.—The rate of prevalence and also that of mortality of diseases in this class exceeds that of 1874, the former by 2·5, the latter by 19 per 1,000 men; the whole of the increased rate of prevalence occurs in the *febrile group*, in the *constitutional group*, the rate is lower; but as regards mortality the position of the two groups is reversed; in the febrile, with a higher rate of prevalence of disease, there is a fractionally lower rate of deaths, whilst in the constitutional, with a lower rate of admissions than in 1874, there is a fractionally higher death-rate.

The admissions and deaths from the principal diseases of this class are shown in the following Table:—

General Diseases.	Admitted.	Died.	Ratio per 1,000 of Mean Strength.			
			1875.		1869-74.	
			Admitted.	Died.	Admitted.	Died.
<i>Febrile—</i>						
Eruptive Fevers	16	..	1·4	..	1·3	·11
Continued „	1,338	9	119·1	·80	118·0	1·54
Paroxysmal „	839	2	74·7	·18	115·6	·47
Cholera	7	4	·6	·36	3·3	1·77
Influenza	27	..	2·4	..	1·3	..
Erysipelas	5	..	·4	..	2·2	·08
Other Diseases of this group.	2	1	·2	·09	·5	·05
Total	2,234	16	198·8	1·43	242·2	4·02
<i>Constitutional—</i>						
Rheumatism	342	..	30·4	..	42·1	·02
Syphilis	1,215	6	108·2	·53	98·7	·17
Scrofula, Phthisis, &c. ..	121	19	10·8	1·69	13·0	1·62
Scurvy and Purpura	3	..	·3	..	·5	·02
Anæmia	30	..	2·7	..	5·1	..
Other Diseases of this group.	7	2	·6	·18	·9	·20
Total	1,718	27	153·0	2·40	160·3	2·03

Eruptive Fevers, were a little more prevalent than in 1874; of the admissions, three were on account of small-pox, two for chicken-pox, and 11 for measles.

Continued Fevers.—The rate of admissions exceeds that of the preceding year by 1·5, but with this is associated a death-rate lower by 32 per 1,000 men.

Paroxysmal Fevers.—The rate of admissions exceeds that of the preceding year by 9·7 per 1,000 men.

Cholera.—This disease was epidemic amongst the civil population in certain districts in the Command, but it was only seen in a sporadic form amongst the troops, and occasioned seven admissions.

Rheumatism.—Compared with the preceding year, there is a decrease of 9·8 per 1,000 men.

Syphilis.—The rate of admissions is fractionally higher than that of 1874; the rate of deaths is 26 per 1,000 higher, and it exceeds the average rate to the same extent; the increase in the mortality consequent on this disease may perhaps be due rather to the more accurate pathological knowledge gained in late years than to the more fatal nature of syphilis in the present time.

Scrofula, Phthisis, &c.—The rate of prevalence is only fractionally higher than that of the preceding year, but the rate of mortality is 57 per 1,000 men higher.

Anæmia.—The fractional difference in the rate of prevalence of this disease in the two years is in favour of the present.

LOCAL DISEASES.—*Diseases of the Nervous System.*—The rate of admissions for diseases in this order is 5·9 per 1,000 men lower than that of the preceding year; the rate of deaths, however, is only fractionally lower; this want of proportion between the two results is due to the circumstance that the decrease in the prevalence mainly took place in neuralgia, and in epilepsy—diseases which are not usually fatal. The admissions for sunstroke were the same in number in both years.

Diseases of the Eye.—The rate of admissions is fractionally less than that of 1874.

Diseases of the Circulatory System, were less prevalent, but were more fatal, than in the preceding year; the decrease in the rate of admissions is 4·3, the increase in the rate of deaths is 76 per 1,000 men.

Diseases of the Respiratory System.—The rate of prevalence is 12·2 per 1,000, or one-fourth lower than the corresponding rate of 1874; the rate of deaths is about the same for both years.

Diseases of the Digestive System.—The rate of admissions is lower than that of the preceding year by 24 per 1,000 men, and in consonance with the decreased prevalence, the rate of deaths is 19 per 1,000 men lower. An increased prevalence of some diseases took place, the most important being tonsillitis, dyspepsia, and diarrhoea; the reduction in prevalence of the whole order was mainly due to that in dysentery and in hepatitis; the rate of admissions for the first-named disease is 15·8 per 1,000 men lower than the corresponding rate for 1874, and the rate of admissions for hepatitis is 18·7 per 1,000 men lower. The rates of mortality for the diseases named in the present, and in the preceding year, are not in correspondence with that of prevalence.

Diseases of the Urinary System.—The rate of admissions for diseases of this nature is 13·1 per 1,000 men higher than the corresponding rate for 1874.

CONDITIONS, &c.—*Debility.*—A reduction of 2 per 1,000 men on the rate of the preceding year, is in accordance with the reduced rate of admissions for anæmia, before noticed.

POISONS.—The rate of admissions is nearly double, and the death-rate is nearly seven times higher, than the corresponding rate of the preceding year; of the deaths, four were due to alcohol poisoning, two to delirium tremens, and one to snake bite.

INJURIES.—*Accidental.*—The rate of admissions is a little lower than that of 1874, but the injuries received ended oftener in death; drowning caused 13 deaths, and two were due to fractures. *Self-inflicted Injuries,* were much more frequent than in the preceding year; of the suicidal deaths, three were by gun-shot, one resulted from a multiple injury, one from fracture, one from cut throat, and drowning was the mode of death in two instances.

In the following Table, taken from the report of the Principal Medical Officer, the admissions and deaths at each of the principal stations in the Command are shown :—

Madras.

Stations.		Average Strength.	Average Daily Sick.	Admitted.	Died.	Invalided	Ratio per 1,000 of Strength.					
							Average Daily Sick.	Admitted.	Died.	Invalided.	Average of previous period of 8 years.	
											Admitted.	Died.
PRESI- DENCY.	Fort St. George	516	35	613	6	56	67·83	1187·98	11·63	108·53	1434·64	22·04
	Palaveram ...	31	1	16	1	...	32·26	516·13	32·26	...	503·70	10·79
	St. Thomas's Mt.	367	25	473	9	13	68·12	1288·83	24·52	35·42	1281·06	22·36
	Trichinopoly ...	278	24	309	7	16	86·33	1111·51	25·18	57·55	1388·96	15·59
	Bellary ...	907	49	987	8	11	54·02	1088·20	8·82	12·13	1141·46	9·54
	Total ...	2,099	134	2,398	31	96	63·84	1142·45	14·77	45·74	...	...
MYSORE.	Bangalore ...	1,668	93	1,667	18	86	55·76	999·40	10·79	51·56	1263·15	12·41
	Cannanore ...	610	34	622	3	50	55·74	1019·67	4·92	98·36	1220·40	18·24
	Calicut ...	99	7	122	...	16	70·71	1232·32	...	161·62	1044·75	17·20
	Mallapoorum ...	96	3	55	...	7	31·25	572·92	...	72·92	1022·36	17·41
	Total ...	2,473	137	2,466	21	169	55·40	997·17	8·49	68·34	...	...
HYDER- ABAD.	Secunderabad ...	2,289	116	2,536	40	183	50·67	1107·91	17·47	79·95	1301·15	28·04
	Kamptee ...	1,005	61	1,598	13	37	60·70	1590·05	12·93	36·82	1750·97	16·81
	Sectabuldee ...	46	1	58	...	...	21·74	1260·87	...	...	1551·52	10·72
	Total ...	3,340	178	4,192	53	220	53·29	1255·09	15·87	63·87	...	...
BURMAH.	Rangoon ...	775	40	782	9	37	51·61	1009·03	11·61	47·74	1327·67	12·60
	Thayetmyo ...	686	20	538	5	19	29·41	791·18	7·35	27·94	1301·53	24·40
	Tonghoo ...	471	30	628	6	28	63·69	1333·33	12·74	59·45	915·63	16·19
	Bassein ...	29	...	15	1	...	...	517·24	34·48	...	...	...
	Port Blair ...	127	4	91	1	1	31·50	716·53	7·87	7·87	948·12	11·42
	Total ...	2,082	94	2,064	22	85	45·15	986·53	10·57	40·83	...	...
DEPOTS.	Poonamallee ...	196	50	476	16	3	255·10	2428·57	81·63	15·31	2851·52	59·57
	Wellington ...	503	25	377	6	17	49·70	749·50	11·93	33·80	1323·26	13·73
	Ramandroog ...	41	2	52	1	3	48·78	1268·29	24·89	73·17	1317·45	11·87
	Total ...	740	77	905	23	23	104·05	1222·97	31·08	31·08	...	...
ON THE MARCH		271	7	50	13*	...	25·83	184·50	47·97	...	587·39	22·28

* Includes 7 deaths, which took place at Colaba, Sholapore, Deolalie, and Poona.

For the Presidency Division, the rate of admissions is 110·9 per 1,000 men lower than that of the preceding year, and the rate of daily sick is also a little lower; on the other hand, the death and invaliding rates are fractionally higher. For the Mysore Division, all the results of sickness are favourable; the daily sick-rate is 7·89, the admission-rate is 143·5, the death-rate is 6·52, and the invaliding-rate 6·71 per 1,000 men lower than the corresponding rate of 1874. All the stations in the Division participated in the smaller amount, and in the decreased severity of the kind of sickness in the present, as compared with the preceding year, but the greatest improvement was that shown at Cannanore, which contributed more to the lower rates for the whole Division than all the other stations in it. The death-rate for Cannanore in the present year, is only one-fifth of that of 1874; this reduction is in harmony with the result, so generally noticed, of the succession of a low rate of mortality to the high rate accompanying the epidemic prevalence of sickness of a dangerous kind. For the Hyderabad Division, all the results of sickness are unfavourable as compared with those of the preceding year; the death-rate is 5·88 and the invaliding-rate is 2·25 per 1,000 men higher than in 1874. The excess of sickness in the Division was confined to one station—Secunderabad. For the Burmah Division, all the results of sickness are unfavourable as compared with the preceding year, but the excess is not very considerable, except in the instance of the invaliding, the rate of which exceeded the proportion for 1874 by 12·99 per 1,000 men.

The admissions and deaths in each class and order of diseases in each of the Military Divisions are shown in the following Tables:—

Madras.

Divisions	...	{	Presi- dency.	Mysore.	Hydera- bad.	Burmah.	Depôts.	On the March.	Presidency.	Mysore.	Hyderabad.	Burmah.	Depôts.	On the March.
Average Strength	...	...	2,099	2,473	3,340	2,082	740	271						
Annual Ratio per 1,000 of Strength.														
Orders.	Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.
1	I. General Diseases.													
2	Febrile Group ...	582	4	338	9	262	3	134	...	137-08	2-69	125-84	1-44	181-08
3	Constitutional " ...	407	4	318	5	224	1	204	8	128-59	1-50	107-59	48	275-67
4	II. Local Diseases.													
5	Nervous System ...	28	3	37	4	12	1	20	1	14-96	1-20	5-76	48	27-03
6	Eye " ...	33	...	65	...	13	...	10	...	26-28	...	6-24	...	13-51
7	Ear " ...	12	...	15	...	20	...	1	...	6-07	...	9-61	...	1-35
8	Circulatory System ...	38	4	82	4	36	1	31	6	33-15	1-62	17-29	48	41-89
9	Absorbent " ...	72	...	49	...	53	...	17	...	22-75	...	23-46	...	22-97
10	Respiratory " ...	64	2	58	1	87	1	30	...	23-45	40	51-80	48	40-54
11	Digestive " ...	493	7	703	8	699	7	300	8	284-27	3-23	335-93	3-86	405-41
12	Urinary " ...	216	...	231	...	118	...	44	...	93-41	...	6-88	...	405-41
13	Genitive " ...	30	...	61	...	47	...	3	...	20-62	...	59-68	...	4-05
14	Organs of Locomotion ...	34	...	12	...	31	...	8	...	3-29	...	1-92	...	3-69
15	Cellular Tissue ...	34	...	36	...	4	...	7	...	14-56	...	14-89	...	10-81
16	Cutaneous System ...	172	...	170	...	151	...	28	...	68-74	...	72-52	...	37-84
17	III. Conditions, &c.													
18	Debility ...	44	...	56	...	63	...	35	...	22-65	...	30-26	...	47-29
19	IV. Poisons ...	5	...	8	...	32	5	2	...	3-23	...	15-37	2-40	2-70
20	V. Injuries.													
21	Accidental ...	169	3	225	3	195	2	31	...	90-96	1-21	98-66	96	41-89
22	Homicide ...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	Self-inflicted ...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	Judicial ...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	VI. Surgical Operations	1	...	4	...	4	...	...	...	1-62	...	1-92	...	...
26	No appreciable disease	...	...	6	...	1	...	...	...	2-43	...	48	...	...
27	Total	2,398	31	2,466	21	2,084	22	905	23	997-15	8-47	936-83	50-56	1,522-95
28	...	...	...	...	...	...	...	50	13	14-78	13-87	936-83	50-56	1,522-95
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Divisions ...	Presidency.	Mysore.	Hyderabad.	Burmah.	Depot.	On the March.	Presidency.	Mysore.	Hyderabad.	Burmah.	Depot.	On the March.
Strength...	2,089	2,473	3,340	2,082	740	271	Presidency.	Mysore.	Hyderabad.	Burmah.	Depot.	On the March.
Annual Ratio per 1,000 of Mean Strength												
General Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
	513	170	302	91	1	...	244.4	68.8	117.4	2.10	1.3	...
Febrile—

Eruptive Fevers

Continued "

Paroxysmal "

Cholera.

Influenza

Erysipelas

Other Diseases of this Group...

Total of Febrile Group ...	582	4	900	9	262	3	134	...	4	...	...	14.8
Constitutional—

Rheumatism

Syphilis

Scrofula, Phthisis, &c.

Scurvy and Purpura

Anæmia.

Other Diseases of this Group...

Total of Constitutional Group	407	4	549	5	224	1	204	...	8	...	...	29.5
Total of Constitutional Group	407	4	549	5	224	1	204	...	8	...	...	29.5

Madras.

GENERAL DISEASES.—The rate of prevalence of diseases of this class is higher in the Presidency, the Burmah, and the Hyderabad Divisions, and lower in Mysore, than in the preceding year; in the Hyderabad Division the increase amounts to 29·56 per 1,000 men. With respect to the two groups of which this class is composed, *diseases of the febrile group*, are in a higher rate than in 1874 in the Presidency, and in the Hyderabad, and in a lower in the remaining Divisions; the difference in the proportion in the two years however is not considerable in any instance. *Diseases of the constitutional group*, are in a lower rate in every Division except the Burmah. The rate of deaths from *febrile diseases*, exceeds that of the preceding year in the Presidency and in the Hyderabad Divisions, and is the same in Burmah; the rate of deaths from *constitutional diseases*, followed a parallel course, being greater in the Presidency, and in the Hyderabad, and exactly the same in the Burmah Division, whilst in Mysore, no death from diseases in either group occurred in the present year.

Eruptive Fevers.—Admissions for fevers of this kind occurred in each Division; but the greatest prevalence was in Hyderabad, the majority of them being from measles at Kamptee.

Continued Fevers.—The rate of admissions for fevers of this nature, is greater than in the preceding year for the Presidency, and the Hyderabad, and less for the remaining Divisions. The prevalence of these fevers in the Presidency, greatly exceeded that in every other Division; this was chiefly due to the prevalence of *simple continued fever* in the 48th Regiment at Bellary, and in the 89th Regiment at Madras.

Enteric Fever.—The prevalence of this disease is in a lower rate than in 1874 in every Division except the Hyderabad.

The stations in the Divisions at which there were admissions for enteric fever, and the months in which they occurred, are shown in the following Table, taken from the Report of the Principal Medical Officer of the Command:—

Stations.				Admissions for Enteric Fever.												Total.
				January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Madras	..	{	Admitted	1	..	..	..	..	..	..	..	..	..	..	1
		{	Died.. ..	..	..	..	..	..	..	..	..	..	..	..	..
Bangalore	..	{	Admitted .. ..	..	..	..	1	1	..	..	..	..	..	..	2
		{	Died.. ..	..	..	..	..	..	..	..	..	..	..	..	..
Cannanore	..	{	Admitted	1	..	3	..	..	..	..	..	..	..	..	4
		{	Died.. ..	..	..	..	..	..	..	..	..	..	..	..	..
Secunderabad	..	{	Admitted .. ..	..	..	..	..	1	2	3	2	1	1	1	10
		{	Died.. ..	..	..	..	..	1	..	1	1	..	..	..	3
Kamptee	..	{	Admitted .. ..	..	..	..	..	2	..	..	..	..	..	..	2
		{	Died.. ..	..	..	..	..	1	1	..	..	..	..	..	2
Thayetmyo	..	{	Admitted	1	..	..	..	..	1	..	..	..	..	..	2
		{	Died.. ..	1	..	..	..	..	..	..	..	..	..	..	1
Port Blair	..	{	Admitted	1	..	..	..	..	..	..	..	..	..	..	1
		{	Died.. ..	..	1	..	..	..	..	..	..	..	..	..	1
Wellington	..	{	Admitted .. ..	..	..	..	..	1	..	..	..	..	..	..	1
		{	Died.. ..	..	..	..	..	..	..	..	..	..	..	..	..

In the following Tables, which are also taken from the report of the Principal Medical Officer, the ages and the periods of residence in India, of those attacked by enteric fever are shown:—

Ages.	Number admitted for Enteric Fever.	Number of Deaths from Enteric Fever.
19 to 20 .. .. .	..	..
20 to 21	1	..
21 to 22	6	1
22 to 23	3	1
23 to 24	3	2
24 to 25	2	1
25 to 26 .. .. .	..	..
26 to 27	1	..
27 to 28	4	1
30 to 31	1	..
37 to 38	1	..
40 to 41	1	1
Total	23	7

Service in India.	Number admitted for Enteric Fever.	Number of Deaths from Enteric Fever.
Under 1 year	1	..
1 to 2 years	3	1
2 to 3 "	10	2
3 to 4 "	1	1
4 to 5 "	5	3
6 to 7 "	1	..
10 years and over	2	..
Total	23	7

Paroxysmal Fevers.—Compared with the preceding year, the rate of admissions for fevers of this kind is lower in the Presidency, Hyderabad, and in the Burmah, but is higher in the remaining Divisions; the prevalence of paroxysmal fevers in the Presidency Division, was much less than that in any other—a circumstance which may have relation to the high rate of prevalence of continued fevers in it.

Cholera.—Five of the seven admissions for cholera occurred in the Presidency Division, three at Madras—in the 89th Foot 2, and in the A Battery 20th Brigade, Royal Artillery, 1—two at Trinchinopoly, in the D Battery 9th Brigade, Royal Artillery. One admission occurred at Secunderabad, in the Hyderabad Division, in the 44th Foot; and one at Tonghco, in the Burmah Division, in the 6th Battery 5th Brigade, Royal Artillery.

Rheumatism.—The prevalence of this disease was less than in the preceding year in every Division, except the Presidency.

Syphilis.—The rate of admissions exceeded that of 1874 in the Hyderabad Division by 3·38, and in the Burmah by 7·13 per 1,000 men; but in the Presidency, and in Mysore, the reduced rates of admission more than counter-balanced the increase in the first-named Divisions; the decrease on the rate of 1874 for the Presidency amounts to 12·17, and for Mysore to 23·78 per 1,000 men.

Scrofula, Phthisis, &c.—The prevalence of diseases of this nature is in a lower rate for the Presidency, and for the Mysore, but in a higher rate for the remaining Divisions. For Depôts the rate is much lower.

LOCAL DISEASES.—*Diseases of the Nervous System.*—The rate of admissions is lower than that of the preceding year for every Division except the Presidency; the reduction amounts to one-half in the instance of the Burmah, and to one-third in that of the Mysore Division; the prevalence of diseases of this kind at Depôts was also much lower than in 1874.

Diseases of the Eye.—A comparison of the proportional prevalence in the present, and the preceding year, of the diseases in this order shows that whilst

Madras.

the rate of admissions is higher for all Divisions except the Hyderabad, this result is balanced by the large reduction at Depôts.

Diseases of the Circulatory System.—The rate of admissions is higher than in the preceding year for the Hyderabad Division, but lower for the others; the rate for Depôts is much lower; the death-rate for diseases of this kind at Depôts, is much higher than in 1874.

Diseases of the Respiratory System.—The rate of admissions is lower for every Division except Burmah, than that of the preceding year, and it is also lower for Depôts; the rate of deaths is higher for every Division; no deaths occurred at Depôts. From these results, it would seem probable that in the present year, the invalids suffering from dangerous diseases of the respiratory system, were more frequently kept with their regiments than transferred to Depôts.

Diseases of the Digestive System.—The rate of admissions for diseases in this order is lower in the Presidency and the Mysore, and higher in the remaining Divisions; the rates of the Hyderabad, and the Burmah Divisions, materially exceed those of the others; the rate for Depôts is lower. All the Divisions, except Hyderabad, have lower death-rates for diseases of the digestive system, than in 1874; that of Depôts, however, is higher.

The relative prevalence of certain of the diseases of this order, in each Division of the Command, is shown in the following Table, which is taken from the Report of the Principal Medical Officer:—

Circles.	Ratio per 1,000 of the Strength											
	Presidency.		Mysore.		Hyderabad.		Burmah.		Depôts.		Troops on the March.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Diseases.												
Dysentery	28·59	1·91	61·06	·40	65·27	2·10	99·42	·96	137·84	2·70	33·21	3·69
Diarrhoea	39·54	·48	35·18	...	78·74	...	56·20	...	47·29	...	3·69	...
Hepatitis, including abscess of liver ... }	51·45	·95	59·85	2·83	63·17	4·19	70·12	2·40	141·89	8·11	3·69	3·69
Total	119·58	3·34	156·09	3·23	207·18	6·29	225·74	3·36	327·02	10·81	40·59	7·38
Dyspepsia	73·84	...	80·07	...	66·17	...	73·49	...	56·76	...	3·69	...

Taking the three diseases—dysentery, diarrhoea, and hepatitis—together, as being probably only different manifestations from the same originating cause, it is seen that in the present year the rate of prevalence is lower than that of 1874 for all Divisions, except Hyderabad, and lower also for Depôts. For the Mysore, the reduction amounts to 63·8 per 1,000 men; the increase for Hyderabad amounts to 24·6 per 1,000. With diminished prevalence in the three Divisions, there was also a smaller mortality; in the Hyderabad Division a greater mortality accompanied the greater prevalence of the three diseases; the mortality for Depôts is also greater.

Diseases of the Urinary System.—The prevalence of diseases in this order is less in the Presidency than in the preceding year, but greater in all the other Divisions.

POISONS.—Compared with the preceding year, the rate of admissions for diseases of this class, is almost the same in the Presidency, and in the Mysore, and is higher in the Hyderabad, and in the Burmah Divisions, the rate of the last-named being nearly twice that of 1874. One of the deaths in the Hyderabad Division, was due to snake bite; the particular kind of snake causing it was not ascertained.

INJURIES.—Accidental.—The rate of admissions is lower than that for the preceding year in the Presidency and in the Mysore, but is higher in the other Divisions.

Certain of the results of sickness for each Corps serving in the Command are shown in the following Table.—

Corps.	Average Annual Strength.	Admitted into Hospital.	Died in the Com- mand, at sea, and at home.	Invalided.	Average Number of Daily Sick.	Ratio per 1,000 of Strength of				Average sick time to each soldier.	Average duration of each case of sick- nesses.	Stations.
						Admissions into Hos- pital.	Deaths.	Invalided.	Daily Sick.			
CAVALRY.												
16th Lancers	461	401	7	27	21·97	869·8	15·18	58·56	47·65	Days. 17·39	20·00	Secunderabad, 12 months.
18th Hussars	406	471	7	12	24·86	1160·1	17·24	29·56	61·23	22·35	19·26	Bangalore, 11½.
(From 1st Jan. to 14th Dec.)												
Total Cavalry.. ..	867	872	14	39	46·83	1005·7	16·15	44·98	54·01	19·72	19·60	
ARTILLERY.												
B Batt., C Brig, R.H.A. ..	166	241	6	15	12·30	1451·8	36·14	90·36	74·10	27·04	18·63	Secunderabad, 12 months.
C " " " Brig, R.A. ..	170	291	6	13	20·52	1711·8	35·29	76·47	120·70	44·06	25·74	Bangalore, 12.
1st Batt., 5th Brig, R.A. ..	85	79	2	6	4·62	929·4	23·55	70·59	54·35	19·84	21·84	Cananore, 12.
2nd " " " " " " ..	92	88	2	2	3·35	956·5	21·74	21·74	36·41	13·29	13·89	Rangoon, 1½; Secunderabad, 10.
4th " " " " " " ..	93	113	2	3	3·16	1215·1	21·51	32·26	33·98	12·40	10·21	Tonghoo, 1½; Madras, 9½.
5th " " " " " " ..	92	96	1	2	5·38	1043·5	10·87	21·74	58·48	21·34	20·45	Secunderabad, 2½; Rangoon, 9.
6th " " " " " " ..	87	139	6	1	6·45	1597·7	68·97	11·49	74·14	27·06	16·93	Rangoon, 2½; Tonghoo, 9.
7th " " " " " " ..	98	153	5	12	7·29	1561·2	51·02	122·45	74·39	27·15	17·39	Tonghoo, 11½.
7th Batt., 6th Brig, R.A. ..	85	76	2	5	3·47	894·1	23·53	58·82	40·82	14·90	16·66	Madras, 1; Rangoon, 10½.
A Batt., 9th " " " " ..	158	199	4	7	10·59	1259·5	25·32	44·80	67·02	24·49	19·42	Secunderabad, 12.
C " " " " " " ..	158	173	4	11	11·46	1094·9	25·32	69·62	72·53	26·47	24·18	Bangalore, 12.
D " " " " " " ..	141	181	5	..	12·50	1283·7	35·46	..	88·65	32·35	25·21	Trichinopoly, 9½.
(From 10th Mar. to 31st Dec.)												
G Batt., 9th Brig, R.A. ..	164	117	2	4	7·25	713·4	12·19	24·39	44·21	16·13	22·62	Thayetmyo, 12.
A Batt., 20th Brig, R.A. ..	161	162	5	4	9·00	1006·2	31·05	24·84	55·90	20·40	20·28	Madras, 12.
B " " " " " " ..	160	108	1	2	5·97	675·0	6·25	12·50	37·31	13·62	20·18	Bellary, 12.

vdras.

Corps.	Average Annual Strength.	Admitted into Hospital.	Died in the Command, at sea, and at home.	Invalided.	Average Number of Daily Sick.	Ratio per 1,000 of Strength of				Average sick time to each soldier.	Average duration of each case of sickness.	Stations.
						Admitted into Hospital.	Deaths.	Invalided.	Daily Sick.			
C Batt., 20th Brig., R.A. . .	165	236	4	2	12·42	1430·3	24·24	12·12	75·27	Days. 27·47	Days. 19·21	Madras, 12 months.
D " " " " " " " " " "	159	147	1	7	8·01	924·5	6·29	44·03	50·38	19·89	19·89	Bangalore, 12.
E " " " " " " " " " "	151	235	2	7	8·60	1526·0	13·00	45·45	55·85	20·38	13·36	Kamptee, 12.
F " " " " " " " " " "	159	261	6	3	13·83	1641·5	37·74	18·87	87·00	31·75	19·34	Secunderabad, 12.
G " " " " " " " " " "	163	254	1	3	9·99	1558·3	6·13	18·40	61·29	22·37	14·36	Kamptee, 12.
Data of Royal Artillery . .	20	10	1	2	·30	500·0	50·00	100·00	..	..	..
Total Artillery	7,730	3,350	68	111	176·46	1230·4	24·91	40·66	64·64	13·59	19·17	
INFANTRY.												
1st Battalion, 21st Foot . .	861	811	10	67	42·63	941·9	11·60	77·82	49·51	18·07	19·19	Madras, 2; Rangoon, 10.
33rd Foot	68	65	1	..	1·73	955·9	14·71	..	25·44	9·29	9·71	Kamptee, 4.
(From 6th to 31st Dec)												
43rd Foot	879	842	1	78	45·16	957·9	1·14	88·74	51·38	18·75	19·58	Cannanore, 10; Bellary, 1.
44th " " " " " " " " " "	793	1,244	11	25	47·04	1568·7	13·87	31·53	59·32	21·65	13·80	{ Kamptee, 11; Secunderabad, 1; Det. at Sitabaldi.
45th " " " " " " " " " "	877	702	10	34	37·09	800·5	11·40	38·77	42·34	15·45	19·28	Rangoon, 2½; Bangalore, 9½
48th " " " " " " " " " "	880	948	11	14	50·11	1077·3	12·50	15·91	56·94	20·78	19·29	Bellary, 11½; Cannanore, 4.
67th " " " " " " " " " "	919	950	11	40	48·21	1033·7	11·97	43·52	52·46	19·15	18·52	Thayetmyo, 12; Wing at Yonghoo, 12.
76th " " " " " " " " " "	755	777	17	70	35·90	1029·1	22·52	92·72	47·55	17·35	16·86	Secunderabad, 12.
89th " " " " " " " " " "	875	857	13	49	54·86	979·4	14·86	56·00	62·70	22·88	23·86	Bangalore, 1; Madras, 10.
107th " " " " " " " " " "	703	640	11	65	30·27	910·4	15·65	92·46	43·06	15·72	17·26	Secunderabad, 11.
(From 1st Jan. to 27th Nov.)												
Total Infantry	7,610	7,836	96	442	393·00	1029·7	12·61	58·08	61·64	18·86	18·31	

The health results in the Cavalry, are more favourable than those of Royal Artillery, but are less so than those of Infantry; the feature of a lower rate of admissions loses importance by its association with a long average sick time to each soldier, and a long average duration of cases of sickness; and whilst the ineffectiveness due to sickness, was a little in excess of the average of the three arms, the intensity of the kind of sickness (as shown by the death-rate) was also somewhat above the average.

The results in the Royal Artillery, are the least favourable of those of the three arms, except that the invaliding rate is lower than that of Infantry.

Compared with the other arms, Infantry, shows a lower rate of prevalence of sickness and of ineffectiveness from it, as measured by the duration of each case of sickness; the comparatively low death rate is diminished in value as an indication of the lesser intensity of the diseases affecting the men, by being associated with an invaliding rate which exceeds the average of all arms. The highest rate of admissions of any corps in the arm, is that of the 44th Foot, which exceeds the average of all arms by nearly one-third; in the preceding year also this corps had a much higher rate of admissions than any other; in both years the prevalence of malarial fever determined the result. The highest death-rate is that of the 107th Regiment, in which deaths from hepatic disease were more numerous than those from any other cause; the invaliding from this regiment was also very extensive, one-half of it being due to diseases of the digestive system.

In the following Table the relation between periods of service in the Command of the various corps, and the results of sickness in them is shown:—

Corps.	Completed years of service in the Command or in India.	Average Annual Strength.	Admitted into Hospital.	Died in and out of the Command.	Invalided.	Average Number of Daily Sick.	Ratio per 1,000 of Strength.				Average Sick Time to each Soldier.	Average duration of each case of sickness.	Date of Arrival in Command or in India.
							Admissions into Hospital.	Deaths.	Invalided.	Daily Sick.			
C Brigade, Rl. Horse Artillery ...	2nd	336	532	12	28	32.82	1583.3	35.71	83.33	94.40	Days. 35.65	Days. 22.50	Jan. 1873
43rd Foot ...	3rd	3,555	3,442	33	166	180.78	968.2	9.28	46.69	50.85	18.56	19.17	Nov. 1872
45th " ...													Feb. "
48th " ...													March "
67th " ...	4th	1,668	2,101	24	74	131.90	1259.6	14.38	44.36	79.08	28.87	22.91	Dec. "
44th Foot ...													Oct. 1871
89th " ...													Nov. 1871
7th Batt., 6th Brig. Royal Artillery ...	6th	1,567	1,557	27	94	87.90	993.5	17.23	59.99	56.09	20.47	20.60	Jan. 1869
9th Brig. Royal Artillery ...													Oct. "
1st Bn. 21st Foot ...													March "
5th Brig. Rl. Artillery	8th	547	668	18	26	30.25	1221.2	32.91	47.53	55.30	20.18	16.51	Oct. 1867
16th Lancers ...	over 10	3,446	3,692	62	202	170.82	1071.4	17.99	58.60	49.57	18.09	16.89	Sept. 1865
18th Hussars ...													" 1864
20th Brigade Royal Artillery ...													Formed in India.
76th Foot ...													Jan. 1864
107th " ...													Formed in India.

The results shown in this grouping of corps are indicative of the comparative unhealthiness of the corps of the shortest service in the Command, and of the maximum healthiness being that enjoyed by corps which had completed three years, and were in their fourth year of service, but owing to the

Indras.

small numbers, and the short periods, the results in the instances of the three succeeding groups are not consistent; in the last group, that of corps which had completed 10 years of service in the Command, the results are rendered unreliable from the presence in them of a large number of men who had not served 10 years in India; the same source of error obtains in all the groups, but in the first ones it is not material, it becomes however progressively more important with the longer service of the corps in the Command. By adding together the loss from deaths, invaliding, &c., it will be understood that after a service of 10 years abroad, the corps must consist more largely of men who joined it with the drafts in successive years, than of those who arrived with it in the Command.

Officers.

The annual average strength of the officers serving in the Command was 398, amongst whom there were 316 cases of sickness and 11 deaths, being in the annual rates of 793·9 and of 27·64 per 1,000 of the strength.

The deaths were due to—enteric fever (1), remittent fever (1), meningitis (2), abscess of brain (1), apoplexy (1), sunstroke (1), dysentery (1), hepatitis (3).

Women.

In an annual average strength of 1,461 women—the wives of the non-commissioned officers and men—there were 962 admissions into hospital, and 26 deaths (in the Command), being in the annual rates of 658·4 and of 17·80 per 1,000 of the strength respectively.

The diseases which caused the greatest number of admissions were fevers, dysentery, diarrhœa, hepatitis, dyspepsia, and general debility, to the last condition nearly one-third of the whole number were due. Included amongst the admissions are 29 cases of abortion. In addition to the admissions for disease, there were 315 for childbirth. The deaths were due to—enteric fever (2), paroxysmal fevers (4), cholera (2), acute rheumatism (1), phthisis (3), bronchitis (1), pneumonia (1), gastritis (1), dysentery (5), diarrhœa (1), hepatitis (2), debility (2). One death was consequent on the puerperal state.

Children.

In an annual average strength of 2,962 children of non-commissioned officers and men, there were 1,641 admissions into hospital and 160 deaths (in the Command), being in the annual rates of 554· and of 54·02 per 1,000 of the strength respectively. One hundred and twenty-two of the admissions were due to eruptive fevers; only one admission is returned for enteric fever, for the other kinds of continued fevers there were 173 admissions, for paroxysmal fevers 93, for cholera 6; the admissions for conjunctivitis were 274, being in the rate of 92·5 per 1,000 of the strength. (The admission rate of the men for all diseases of the eye together is only 14· per 1,000.) Dysentery, and diarrhœa, caused 263 admissions, and debility 207. The deaths were due to—measles (4), simple continued fever (4), remittent fever (1), cholera (5), scrofula and tubercular disease (8), purpura (2), meningitis (2), hydrocephalus (2), hydrophobia (1), convulsions (30), croup (2), bronchitis (6), pneumonia (1), cancrum oris (1), teething (27), tonsillitis (2), dysentery (9), diarrhœa (27), intussusception (1), hepatitis (1), general debility (14), asphyxia from overlaying (1), burn (1), congenital defects (6).

III.—BOMBAY.

Bombay.

The average annual strength of the non-commissioned officers and men of the European Troops serving in the Bombay Command, in 1875, was 10,342. The admissions into hospital among them were 14,188, being in the rate of 1371·8 per 1,000 men; the deaths, including those of invalids on the passage, or after arrival at home, were 227, being in the rate of 21·95 per 1,000 men; the average number of men in hospital daily throughout the year was 583·96, being in the rate of 56·46 per 1,000. The rates for all these results of sickness exceed the corresponding ones of the preceding year—the admission-rate, by 104·5; the death-rate, by 10·79; and the constantly sick-rate, by 6·36 per 1,000 men.

The admissions and deaths, in each class and order of diseases, are shown in the following Table :—

Order.	Diseases.	Strength, 10,342.				Ratio per 1,000 of Mean Strength.			
		Admissions.	Deaths.			1875.		1869-74.	
			In India.	Of Invalids.	Total.	Admitted.	Died.	Admitted.	Died.
I. General Diseases.									
1	Febrile Group ..	5,422	88	..	88	524·3	8·51	654·9	4·54
2	Constitutional „ ..	1,307	18	8	26	126·4	2·51	148·0	2·11
II. Local Diseases.									
Diseases of the—									
1	Nervous System ..	184	33	..	33	17·8	3·19	16·8	2·28
2	Eye	268	..	..	..	25·9	..	26·2	..
3	Ear	92	..	..	..	8·9	..	5·9	·02
4	Nose	7	..	..	..	·7	..	·6	..
5	Circulatory System ..	177	10	..	10	17·1	·96	12·5	1·19
6	Absorbent „ ..	230	..	..	..	22·2	..	23·0	..
8	Respiratory „ ..	481	9	1	10	46·5	·97	42·3	·67
9	Digestive „ ..	2,512	36	4	40	242·9	3·87	217·6	3·79
10	Urinary „ ..	872	2	..	2	84·3	·19	84·1	·23
11	Generative „ ..	137	..	..	..	13·2	..	10·2	·02
12	Organs of Locomotion..	51	1	..	1	4·9	·10	4·5	·05
13	Cellular Tissue..	187	..	..	..	18·1	..	17·9	..
14	Cutaneous System ..	764	..	..	..	73·9	..	70·9	·02
III. Conditions, &c.									
	Debility.. ..	314	..	..	..	30·4	..	18·4	·03
IV. Poisons ..									
		91	4	..	4	8·8	·39	8·4	·28
V. Injuries.									
2	Accidental	1,074	10	..	10	103·8	·97	86·6	·69
3	Homicidal .. ..	..	..	..	..	..	..	·1	·09
4	Self-inflicted	1	3	..	3	·1	·29	·2	·50
5	Judicial.. ..	..	..	..	..	..	..	..	·08
VI. Surgical Operations.									
	No Appreciable Disease	17	..	..	..	1·6	..	·6	..
	Total ..	14,188	214	13	227	1371·8	21·95	1449·9	16·61
	Average of 10 years, } 1865-74 .. ..	..	..	..	..	1387·6	18·94	..	..

Bombay.

GENERAL DISEASES.—The rate of prevalence of diseases in this class exceeds that of 1875 by 68·5 per 1,000 men. The whole of the increase occurs in the *Febrile Group* of diseases; in those of the *Constitutional Group*, there is a slightly lower rate of prevalence. The rate of mortality for the class is higher than that of the preceding year by 7·99 per 1,000, being nearly threefold higher. An increased rate of deaths occurs in both groups of the class, and in about the same proportion in each.

The admissions and deaths caused by the principal diseases in this class, are shown in the following Table:—

Strength 10,342.					Ratio per 1,000 of Mean Strength.			
General Diseases.					1875.		1869-74.	
					Admitted.	Died.	Admitted.	Died.
<i>Febrile</i> —								
Eruptive Fevers	6	1	·6	·10	1·5	·05		
Continued „	1,070	22	103·5	2·13	156·0	1·76		
Paroxysmal „	4,240	9	410·0	·87	428·6	1·20		
Cholera	83	54	8·0	5·22	2·1	1·45		
Influenza	12	..	·2	..	·9	..		
Erysipelas	15	2	1·4	·19	1·3	·02		
Other Diseases of this group	6	..	·6	..	·4	·06		
Total	5,422	88	524·3	8·51	654·8	4·54		
<i>Constitutional</i> —								
Rheumatism.	451	1	43·6	·10	41·4	·05		
Syphilis	733	1	70·9	·10	87·1	·12		
Scrofula, Phthisis, &c.	75	20	7·2	1·93	10·0	1·67		
Scurvy and Purpura	5	2	·5	·19	·6	·05		
Anæmia	37	..	3·6	..	7·7	·06		
Other Diseases of this group	6	2	·6	·19	1·1	·16		
Total	1,307	26	126·4	2·51	147·9	2·11		

Eruptive Fevers.—The admissions for fevers of this nature were 6 in number, two being for small-pox, one for chicken-pox, one for measles, and two were admissions after vaccination.

Continued Fevers.—The rate of admissions for continued fevers, exceeds that of the preceding year by 27·7 per 1,000 men, and the rate of deaths is ·81 per 1,000 higher. In a somewhat smaller strength, *Enteric Fever*, caused nine more admissions, and five more deaths than in 1874. The rate of deaths to attacks of this disease is 428·6 per 1,000; it exceeds the rate of mortality in the preceding year by 34·67 per 1,000. The admissions for *Simple Continued Fever*, were nearly twice as numerous as in the preceding year. The admissions for *Febricula*, were also somewhat more numerous.

Paroxysmal Fevers.—The rate of prevalence is 51· and that of deaths is ·11 per 1,000 men higher than the corresponding rate of the preceding year.

Cholera.—The occurrence of cholera in an epidemic form, at certain stations, was the most prominent feature in connection with the sickness in the Command in the present year; it caused 83 admissions, and 54 deaths, between the first week in May and the fourth week in October; the greatest prevalence of the disease was in the second, and third weeks of August. The last considerable outbreak of cholera amongst the troops in the Command was in 1872, when there were 42 admissions; in the succeeding year there were no admissions for this disease; in 1874 three admissions were returned. The proportion of deaths to attacks in the outbreak of the present year,

650·6 per 1,000, though high, is more favourable than that in the outbreak of 1872, when it was 786·71 per 1,000 attacks.

Rheumatism.—The rate of prevalence, and also that of mortality, of diseases of this kind is nearly the same as in the preceding year.

Syphilis.—Compared with 1874 there is a decrease of 18·9 per 1,000 men in the rate of admissions.

Scrofula, Phthisis, &c.—The rate of prevalence is fractionally less, but that of mortality is threefold higher than the corresponding rate of the preceding year.

Anæmia.—The rate of admissions for this disease exceeds that of 1874, but the whole number of admissions in either year is comparatively inconsiderable.

LOCAL DISEASES.—*Diseases of the Nervous System.*—The rate of admissions for diseases of this order exceeds that of the preceding year by only 1· per 1,000 men, but the rate of deaths is nearly twofold greater, a result due to the occurrence of a greater number of attacks of sunstroke, and of apoplexy, in the present year, and to the high proportionate mortality attending them.

With the exceptions of *diseases of the nose*, of the *absorbent system*, and of the *cutaneous system*, the rate of admissions is higher than the corresponding rate of the preceding year, in every order of diseases in this class; and with one exception, that of *diseases of the circulatory system*, the rate of mortality is also higher in all the orders in which deaths occurred in either year. The excess in *diseases of the digestive system*, is ·74 per 1,000 men.

CONDITIONS, &c.—*Debility.*—The rate of admissions exceeds that of the preceding year by ·3 per 1,000 men.

POISONS.—The rate of admissions exceeds that of 1874 by 2· per 1,000 men; concomitantly with a greater prevalence, there was a greater intensity of diseases in this class, evidenced by an increase in the rate of mortality, on that of the average. In the preceding year no deaths were due to poisons. Of the admissions in this class, 67 were due to *delirium tremens*, four of the attacks being fatal; 21 to alcohol, taken in an immediately poisonous quantity; two admissions were consequent on the stings of insects, and one was due to the poison of a vegetable irritant.

INJURIES.—*Accidental.*—The admissions in this order are in a slightly lower rate than in the preceding year, but the rate of mortality is higher. One of the deaths was from a multiple injury, five were from drowning, two were from gunshot, one was from fracture, and one was from injury of the brain. There were three *self-inflicted* deaths, by gunshot in each instance.

The admissions and deaths at the principal stations in the Command are shown in the following Table:—

Military Divisions.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in India.	Ratio per 1,000 of Strength.			
					Admitted.	Died.	Average of 12 Years.	
							Admitted.	Died.
Presidency	Bombay	535	1,321	11	2469·7	20·56	1471·1	19·08
	Deolali	50	54	2	1080·0	40·00	..	..
	Baroda	357	585	20	1638·7	56·02	..	..
	Ahmedabad ..	254	434	7	1708·7	27·56	2069·6	22·19
	Mount Aboo ..	104	130	1	1250·0	9·62	1884·7	20·69
	Deesa	753	629	11	836·6	14·61	1387·6	16·83
	Aden	694	643	4	926·5	5·76	1109·9	19·00
	Kurrachi ..	755	910	17	1205·3	22·52	1442·1	13·53
	Hyderabad ..	376	480	4	1276·6	10·64	1279·3	14·35

Bombay.

Military Divisions.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in India.	Ratio per 1,000 of Strength.			
					Admitted.	Died.	Average of 12 Years.	
							Admitted.	Died.
Poona ..	Poona	1,384	2,566	28	1854·0	20·23	1304·8	12·35
	Kirkee	461	843	13	1828·6	28·20	1358·4	10·24
	Ahmednagar ..	418	399	2	954·5	4·78	1288·4	10·93
	Satara	159	152	1	956·0	6·29	1130·2	12·38
	Belgaum	993	1,119	15	1126·9	15·11	1023·8	8·95
Mhow ..	Mhow	1,256	1,848	25	1487·3	19·90	1661·4	13·27
	Indore	99	176	..	1777·8	..	1463·8	15·35
	Neemuch	436	829	25	1878·4	57·57	2251·6	36·71
	Nasirabad	579	924	16	1595·8	27·63	1924·9	29·22
	Assirgarh	92	61	..	663·0	..	1380·4	15·28
	Depôts, Sanitaria, &c...	196	376	7	1918·4	35·71	..	..
	On the March, &c.	224	203	1	906·2	4·46	1008·5	19·40

The rate of admissions, and also that of deaths, is lower than in the preceding year for Assirgarh, Deesa, and Aden. At the first-named station, the strength in both years was inconsiderable, and consequently great fluctuations in the rates of the results of sickness, are to be expected. For the station of Deesa, the reduction in the admission rate on that of 1874 amounts to 247·8, and, in the rate of deaths, to 3·14 per 1,000 men. In the case of Aden, the decrease in the rate, both of admissions and of deaths, is less considerable. The rate, both of admissions and of deaths, is higher than in 1874 for Poona, Kirkee, Belgaum, Nasirabad, Kurrachi, and Satara; in every instance except that of Belgaum, much higher. At Poona, the excess of admissions was due to the great prevalence of malarial fevers in the two regiments there; the excess in the rate of mortality of that station was caused by deaths from enteric fever, and from cholera. The admission-rate for Nasirabad is nearly double, and the death-rate is more than threefold the corresponding rate in 1874; the first result was caused by the greater prevalence of malarial fevers, the second did not depend on excessive mortality from any one disease, but on the greater fatality than in the preceding year, of a number of diseases. The admission-rate for the station of Kurrachi, is one-fourth higher, and the death rate is more than double the rate of 1874. For the stations of Bombay, Ahmedabad, Hyderabad, and for Troops on the March, the admission rates are higher, whilst the death rates are lower, than those of the preceding year. On the other hand, the opposite results of lower admission rates, with higher death rates, than in 1874, are seen in the instances of Mhow, Neemuch, and Mount Abo.

The admissions and deaths in the different classes and orders of diseases in each Division in the Command, are shown in the following Table:—

REPORT FOR 1875

185

Bombay.

Military Divisions	Presi- dency.	Poona.	Mhow.	Troops on March.	Convales- cents and Invalids.	Presidency.	Poona.	Mhow.	Troops on March.	Convalescents and Invalids.						
Average Annual Strength	3,958	3,433	2,866	224	196	Proportions per 1,000.										
Diseases.																
I. General Diseases.																
1 Febrile Group	1,986	1,907	1,521	35	96	3	501.8	6.32	555.5	6.70	637.5	14.67	151.8	4.46	489.8	15.31
2 Constitutional "	429	406	407	4	59	1	108.4	1.01	135.7	2.33	170.6	1.67	71.4	...	301.0	5.10
II. Local Diseases.																
1 Diseases of the—																
1 Nervous System	54	39	66	8	22	...	13.6	4.29	11.4	2.33	27.7	3.35	17.9	...	112.4	...
2 Eye	100	93	68	...	3	...	25.3	...	27.1	...	28.5	...	17.9	...	15.3	...
3 Ear	34	33	24	...	1	...	8.6	...	9.6	...	10.1	...	...	...	5.1	...
4 Nose	3	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...
5 Circulatory System	71	50	48	2	18	1	17.9	1.01	14.6	...	20.1	...	13.4	...	91.9	5.10
6 Absorbent	82	108	30	...	13	...	20.7	...	31.4	...	12.6	...	26.8	...	66.3	...
7 Respiratory	122	193	159	3	16	...	30.8	1.26	56.2	...	66.6	...	26.8	...	81.6	...
8 Digestive	924	923	655	9	72	2	233.4	3.54	268.9	3.21	274.5	3.77	218.7	...	367.4	10.20
9 Urinary	233	392	188	1	8	...	71.5	...	114.1	...	78.8	...	102.7	...	40.8	...
10 Generative	43	53	33	...	1	...	10.9	...	15.4	...	13.8	...	31.2	...	5.1	...
11 Organs of Locomotion	17	18	17	...	1	...	4.3	...	5.2	...	7.1	...	4.4	...	5.1	...
12 Cellular Tissue	91	57	38	...	2	...	23.0	...	16.6	...	15.9	...	22.3	...	10.2	...
13 Cutaneous system	370	214	187	...	13	...	93.5	...	62.3	...	78.4	...	75.9	...	66.3	...
III. Conditions, &c.																
Debility	129	109	64	...	41	...	32.6	...	31.9	...	26.8	...	8.9	...	209.2	...
IV. Poisons	18	40	31	1	1	...	4.5	...	11.7	...	13.0	...	...	...	5.1	...
V. Injuries.																
2 Accidental	420	330	298	3	8	...	106.1	1.26	113.6	...	124.9	1.26	116.1	...	40.8	...
4 Self-inflicted	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
VI. Surgical Operations																
No appreciable disease	10	8	...	...	1	...	2.5	...	2.3	...	...	...	...	...	5.1	...
Total	5,186	5,096	3,838	66	376	7	1,310.2	19.45	1,434.3	17.76	1,603.5	27.66	906.2	4.46	1,918.5	35.71

NOTE.—The various stations in the Bombay Command having been redistributed in Military Divisions, and the number of the latter reduced from six to three, no comparison of results in the present, and in the preceding year between the Divisions can be made.

Bombay.

GENERAL DISEASES.—The highest rate of admissions for diseases in this class, is conjoined with the highest rate of deaths in the Mhow Division. The rate of prevalence of diseases in both groups of the class is also greatest in this Division, but the rate of mortality for the *constitutional group*, is exceeded by that of the Poona Division.

The admissions and deaths from the principal diseases in this class, in each of the Divisions, are shown in the following Table:—

Military Divisions...		Presidency.	Poona.		Mhow.	Troops on March.		Conval- escents and Invalids.		Presidency.	Poona.		Mhow.	Troops on March.		Conval- escents and Invalids.			
Strength		3,958	3,433	2,386		224	196	Ratios per 1,000.											
General Diseases.		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.		
<i>Febrile—</i>																			
Eruptive Fevers		2	...	4	1	...	...	...	...	5	...	1.2	.29	...	...	...	...
Continued "		364	13	493	5	206	1	13	...	92.0	3.28	143.6	1.46	86.3	.42	58.0	...		
Paroxysmal		1,601	2	1,368	1	1,272	5	21	1	404.5	.51	398.5	.29	533.1	2	93.8	...		
Cholera		18	10	26	16	37	27	...	...	4.5	2.53	7.6	4.66	15.5	11.32	...	...
Influenza		...	...	...	...	1	...	...	...	...	...	...	...	.4	...	...	...
Erysipelas		1	...	10	...	4	2	...	...	...	...	2.9	...	1.7	.84	...	...
Other Diseases of this Group		...	...	6	...	1	...	...	...	...	...	1.7	...	.4	...	...	...
Total		1,986	25	1,907	23	1,521	35	34	1	501.8	6.32	555.5	6.70	637.4	14.67	151.8	15.31		
<i>Constitutional—</i>																			
Rheumatism		148	1	134	...	167	...	4	...	37.4	.25	39.0	...	70.0	...	17.8	...		
Syphilis		232	...	295	...	212	1	10	...	58.6	...	85.9	...	88.9	.42	41.6	...		
Scrofula, Pthiasis, &c.		27	3	27	5	15	3	1	...	6.8	.76	7.9	1.46	6.3	1.26	4.5	...		
Scurvy and Purpura		...	...	1	1	4	...	...	...	...	...	.3	.29	1.7	...	...	...
Anæmia		20	...	9	...	8	...	1	...	5.1	...	2.6	...	3.3	...	4.5	...		
Other Diseases of this Group		2	...	...	2	1	...	...	...	.5	...	...	.58	.4	...	...	...
Total		429	4	466	8	407	4	16	...	108.4	1.01	135.7	2.33	170.6	1.68	71.4	301.0		

Continued Fevers.—The rate of prevalence of fevers of this nature for the Poona Division, greatly exceeds that of either of the others. The highest rate of mortality is found with a low rate of prevalence in the Presidency Division; this association is explained by the more fatal character of the attacks of enteric fever occurring in the Presidency.

Enteric Fever.—The greatest prevalence of this form of fever was in the Poona Division, at the station of Poona. The Presidency Division shows the next greatest degree of prevalence.

The relations of enteric fever to locality, and to season, are shown in the following Table, which has been compiled from the Quarterly Returns of the Command:—

Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Presidency	Deesa ..	1	1	..	..	..	..	..	..	1	1
	Kurrachi ..	..	..	4	2	6	5	1	..	11	7
	Baroda ..	..	..	..	..	..	..	2	..	2	..
	Ahmedabad ..	..	..	..	..	..	..	1	1	1	1
	Total ..	1	1	4	2	6	5	4	1	15	9
Poona ..	Poona ..	..	..	7	3	5	..	1	..	13	3
	Ahmednagar ..	2	..	..	..	..	..	..	..	2	..
	Belgaum ..	..	..	2	2	..	..	1	..	3	2
	Total ..	2	..	9	5	5	..	2	..	18	5
Mhow ..	Mhow ..	..	..	1	1	..	..	1	..	2	1
	Indore ..	..	..	1	..	..	..	..	..	1	..
	Nasirabad ..	..	..	..	..	..	..	1	..	1	..
	Total ..	..	..	2	1	..	..	2	..	4	1
Depots, &c. ..	Teethal ..	..	..	1	..	..	..	..	..	1	..
	Tarraghar ..	..	..	1	1	1	1	..	..	2	2
	Total ..	..	..	2	1	1	1	..	..	3	2
	Total in the Com.mand..	3	1	17	9	12	6	8	1	40	17

The relation between the prevalence of enteric fever and locality is obscured by the evidence of its relation to periods of residence in the Command, or in other words, the immensely greater susceptibility of new comers to contract this disease, than that existing in the case of those whose susceptibility may have been weakened by the influence of a longer exposure to its exciting cause. In the present year, two corps, having together a strength of 1,839 non-commissioned officers and men, arrived in the Bombay Command from England; the admissions for enteric fever amongst them were 25, being in the rate of 13·6 per 1,000 men. In the other corps in the Command,

Bombay.

having a strength of 8,503 non-commissioned officers and men, there were 17 admissions for enteric fever, being in the rate of 2' per 1,000; but in these corps were 401 men newly-arrived from home, and it was in this small number that most of the 17 attacks of enteric fever occurred. The negative evidence is also to the same effect, only one admission for enteric fever is returned by the three corps, which, being near the end of their service in India, did not receive drafts of fresh men in 1874. These facts respecting enteric fever are in harmony with those accumulated in past years, and made available through the labours of the eminent Medical Officer who is the recognised authority on statistics of disease in India; but it should not be lost sight of that the knowledge acquired of late years as to the class of persons most likely to suffer from enteric fever in India does not of necessity lead to the acceptance of the opinion that the disease is, in a certain proportion of young persons, the unavoidable result following on arrival in that country. If the known conditions which determine the production of enteric fever in other countries, are present in a cantonment in India, the disease will appear, and will attack the susceptible class there; but that it is not originated as the necessary outcome of climatic conditions acting on young and unseasoned constitutions, is attested by the fact, that, some stations of the Bombay Command—in the present, as in past years—have been free from the disease, though they contained susceptible persons.

Paroxysmal Fevers.—The highest rate of prevalence, that of the Mhow Division, exceeds the lowest, that of the Poona Division, by 134·61 per 1,000, and, with the greatest prevalence, the greatest mortality is conjoined.

The following Table, taken from the report of the Principal Medical Officer, shows the proportional prevalence of paroxysmal fevers at the several stations in the Command, in the present and in the preceding year, arranged in the order of the greatest prevalence :—

Stations.	Rate of admissions per 1,000 of strength.		Stations.	Rate of admissions per 1,000 of strength.	
	1875.	1874.		1875.	1874.
Bombay.. ..	1058·6	619·4	Kurrachi ..	347·0	187·0
Neemuch ..	784·4	1110·3	Kirkee ..	319·6	287·3
Poona	720·9	415·6	Satara	276·7	250·0
Indore	676·8	701·0	Aden	276·7	320·1
Hyderabad ..	622·3	592·8	Assirghur ..	271·7	485·1
Poorundhur ..	592·1	269·7	Ghizri	176·5	600·0
Ahmedabad ..	590·6	546·8	Belgaum ..	143·0	132·9
Taraghur ..	500·0	..	Baroda	134·8	2225·8
Mhow	486·5	447·0	Deesa	119·5	281·1
Mount Aboo ..	424·5	850·0	Deolali.. ..	115·9	719·3
Nasirabad ..	393·4	95·4	Ahmednagar ..	90·9	250·0

Cholera.—The greatest prevalence of this disease, and the greatest fatality from it, was in the Mhow Division; the proportion of deaths to attacks, also 729·7 per 1,000, was higher than that in the Poona Division, 615·4 per 1,000 attacks. Only 18 admissions for the disease took place in the whole of the

Presidency Division, none of which were in that extensive northern portion of it, which was formerly the Scinde Division. No comprehensive narrative of the outbreak of cholera in the Command can be compiled from the notices respecting individual cases of the disease which occur in the reports of some of the Medical Officers, as even if the essential facts were always given, they would not suffice to indicate the epidemic relations of the disease to other localities, and to other populations, than those within the sphere of observation of the writer. It may still however be of use to collate and to record the most salient facts respecting the epidemic, which are found in the reports from the Command. The first admission in the outbreak occurred on the 5th of May, at Baroda; between this and the 11th of June there were 15 admissions amongst the men of the E. Battery, 9th Brigade, Royal Artillery, and in the detachment 2nd Battalion, 7th Foot, stationed there. Previously to this cholera had prevailed amongst the native population of Baroda. The troops were encamped as soon as the existence of the disease amongst them was established. At the neighbouring station of Ahmedabad, in May, two men of the force there were attacked by cholera, and in the same month, at Khandalla, there were two admissions, and in the latter part of June, two men of the detachment of the 2nd Battalion, 7th Foot, who had recently arrived from Baroda, were attacked. About this time, also, there were two admissions at Kirkee.

The next outbreak, in point of time, was that which occurred at Neemuch, a station north-east of Baroda, in the F Battery, 9th Brigade, Royal Artillery, and in the detachment 108th Foot; there were 26 admissions of non-commissioned officers and men, of which 23 were in the Artillery, 18 being fatal; three were in the 108th, two being fatal. There was also a comparatively wide diffusion of the disease amongst the families of the soldiers. The first soldier was attacked on the 27th of July, the last on the 9th of September. The battery of Artillery moved into camp on the 7th of August, and remained encamped until the 24th of September. The usual good effect of vacating infected quarters, was not apparent in this instance; of the 23 attacks of cholera in men of the battery, 20 occurred at the different camps occupied; nine of the attacks occurred at one place, which was reached on the 8th day after leaving the barracks; from a knowledge of the usual period of latency of this disease, it may be inferred that the illnesses were not contracted in quarters. The comparative exemption of the detachment of the 108th, during the outbreak of cholera in the battery of Artillery, is accounted for by the circumstance of its having been quartered in barracks two miles distant from, and to the west of, those occupied by the Artillery, and placed at a greater elevation. Whilst the rate of admissions in the last-named arm, is 138.5 per 1,000 of the average annual strength, that in the first is only 10.7. The first case in the 108th occurred in hospital, on the 20th of August, (nearly a month after the beginning of the outbreak in the Artillery), and was that of a man who had been 14 days there previously to his attack; the hospital was at once vacated, and a similar course was followed in the instances of those buildings in which the other two attacks of cholera originated.

In the beginning of August, outbreaks of cholera occurred at Poona, in the 2nd Battalion, 15th Foot, and at Mhow, in the 68th Foot. These may properly be called house epidemics, as the disease did not affect the troops stationed in the other barracks at the two stations. The attacks in the 2nd Battalion 15th, (and in men attached to the battalion), were 17 in number; they all occurred between the 7th and 20th of August, and, in thirteen instances the men were either in hospital at the time, or were attending hospital, or were on duty there. The greatest proportional mortality was in the class of men over 25 years of age. At Mhow, cholera had prevailed amongst the natives, and cases had occurred amongst the native troops at the station four months before; the first man of the 68th, was attacked on the 9th of August; between this and the 23rd of September, when the regiment went into camp, there were 11 attacks amongst the men of the regiment. No case of the disease appeared after the barracks were left. Two of the attacks originated in hospital.

During the period of the epidemic prevalence of cholera in the stations

Bombay. referred to, sporadic cases of the disease occurred at other stations of the Command, as at Bombay (1), at Ahmednagar (1), at Nasirabad (1).

Rheumatism.—The rate of admissions in the Mhow Division greatly exceeds that of the others. The greatest prevalence of this disease was in the 108th, and in the 68th Regiments.

Syphilis.—The rate of admissions is nearly the same in the Poona, and in the Mhow Divisions; for the Presidency, the rate is lower than either of the others by about one-third.

Scrofula, Phthisis, &c.—There is no material difference in the rate of admissions for diseases of this kind in the three Divisions.

LOCAL DISEASES.—Diseases of the Nervous System.—The rate of admissions for diseases in this order, of the Mhow Division, is more than double that of either of the two others, but the greatest rate of mortality is that of the Presidency, in which Division the large proportion of deaths was caused by the increased fatality of attacks of apoplexy, and of sunstroke.

Diseases of the Eye.—In all the Divisions the rates of admissions for diseases in this order are nearly the same.

Diseases of the Circulatory System.—The rate of admissions for the Mhow Division, exceeds that of the Poona by nearly one-third.

Diseases of the Respiratory System.—The rate of admissions for the diseases of this order varies widely, that of the Mhow Division being 35·8 per 1,000 men greater than that of the Presidency, but the rate of mortality is the same in both Divisions.

Diseases of the Digestive System.—The rates of admissions, and those of deaths, of the three Divisions, do not differ materially.

Diseases of the Urinary System.—The rate of admissions for the Poona Division exceeds the lowest rate by 42·69 per 1,000 men.

POISONS.—The rate of admissions for the Mhow Division is three times greater than that of the Presidency.

INJURIES.—Accidental.—There is no important difference in the rate of admissions due to accidental injuries in any of the three Divisions.

The admissions, deaths, invaliding, and number of constantly sick in the several corps which served in the Command during the year, or part of the year, are shown in the following Table :—

Regiments.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average number constantly sick.	Ratio per 1,000 of Annual Strength.				Average sick time to each soldier.		Average duration of each case of sickness.	Stations during the Year.
						Admitted.	Died.	Invalided.	Constantly sick.	Days.	Days.		
CAVALRY.													
3rd Hussars ..	454	545	4	67	25·87	1200·4	8·81	147·6	56·98	20·80	17·33		Mhow, 12 months; det. at Bombay, 2.
ROYAL ARTILLERY.													
D Battery, C Brig, R.H.A.	155	283	6	14	13·37	1825·8	38·71	90·32	86·26	31·49	17·24		Kirkee, 12; detachment at Bombay, 1.
E Battery, C Brig, R.H.A.	153	291	2	37	12·12	1901·9	13·07	241·83	79·21	28·91	15·20		Mhow, 12.
A Batt., 4th Brig, R.A.	137	301	9	3	9·34	2197·0	65·03	21·90	68·18	24·88	11·36		Kirkee, 9; detachment at Baroda 2.
B " 4th "	134	165	6	3	6·67	1231·3	44·78	22·39	49·78	18·17	14·75		Deesa, 9.
C " 4th "	130	257	4	10	10·02	1976·9	30·77	76·92	77·08	28·13	14·23		Belgaum, 9.
D " 4th "	125	130	9	5	6·11	1040·0	72·00	40·00	48·89	17·84	17·15		Kurrachi, 9.
E " 4th "	121	236	4	1	7·16	2115·7	33·06	8·26	59·17	21·60	10·21		Kirkee, 9; on the march 1.
F " 4th "	143	257	3	9	8·45	1797·2	20·98	62·94	59·09	21·57	12·00		Ahmedabad, 10.
G " 4th "	134	356	4	14	15·10	2656·7	29·85	104·48	112·68	41·19	15·41		Nasirabad, 9.
1st " 6th "	83	76	..	4	2·52	915·7	..	48·20	30·36	11·08	12·10		Aden, 9; Colaba, 2.
2nd " 6th "	84	127	4	7	7·27	1511·9	47·62	83·33	86·55	31·59	20·89		Mhow, 9; Aden, 3.
3rd " 6th "	82	209	3	3	7·18	2548·8	36·58	36·58	86·34	31·96	12·54		Colaba, 9; Aden, 3.
4th " 6th "	83	177	4	5	6·16	1132·5	48·19	60·12	74·22	27·09	12·70		Colaba, 8; Mhow, 3.
5th " 6th "	82	204	1	11	6·63	1146·3	12·19	134·15	80·85	29·80	11·86		Colaba, 12.
6th " 6th "	78	73	1	1	3·22	935·9	12·82	12·82	41·28	15·07	16·10		Aden, 9; Colaba, 2.
B " 9th "	171	339	2	11	9·49	1982·4	11·70	64·33	55·80	20·36	10·22		Hyderabad, 8; Kurrachi, 3.
D " 9th "	47	25	1	7	·92	531·9	21·28	148·93	19·51	7·14	13·13		Kirkee and Baroda, 3.
E " 9th "	170	258	3	2	8·20	1517·6	17·65	11·76	48·23	17·61	11·60		Ahmednagar, 4; Kirkee and Baroda, 8.
F " 9th "	166	363	20	18	11·53	2192·8	120·48	108·43	69·46	25·35	11·59		Nemuch, 12.
Total Royal Artillery	2,278	4,147	86	165	151·46	1820·5	37·75	72·43	66·49	24·27	13·33		

Bombay.

Regiments.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average number constantly sick.	Rate per 1,000 of Annual Strength.				Average sick time to each soldier.	Average duration of each case of sickness.	Stations during the Year.
						Admitted.	Died.	Invalided.	Constantly sick.			
ROYAL ENGINEERS ..	38	10	1	..	17	263.2	26.31	..	4.47	1.63	6.20	Kirkee, 12.
INFANTRY.												
1st Batt., 2nd Foot ..	925	1,358	10	41	47.85	1468.1	10.81	44.32	51.73	18.88	12.87	Ahmednagar, 12; detachments at Colaba, Satara, and Poona.
2nd " 7th " ..	886	1,919	23	95	64.04	2165.9	25.96	107.22	76.28	26.38	12.18	Poona, 12; detachments at Baroda and Bombay.
2nd " 15th " ..	698	849	17	20	32.10	1216.3	24.37	28.65	46.13	16.78	13.80	Poona, 10½.
2nd " 25th " ..	519	448	3	1	19.51	863.2	5.78	1.92	37.59	13.72	15.89	Bombay, 1; Aden, 10.
41st Foot ..	89	41	1	1	2.81	460.7	11.24	11.24	31.57	11.52	25.01	Aden, 2.
56th " ..	884	908	11	20	35.25	1027.1	12.44	22.62	39.87	14.55	14.15	Kurrachi, 12; detachment at Hyderabad.
66th " ..	895	879	13	67	44.65	982.1	14.52	74.86	49.89	18.21	18.54	Belgaum, 12.
68th " ..	886	1,174	18	64	72.41	1325.1	20.32	72.23	81.73	29.83	22.51	Mhow, 12; detachments at Assingarth and Indore.
83rd " ..	900	788	14	48	37.95	874.4	15.55	53.33	42.17	15.39	17.58	Deesa, 12; detachments at Ahmedabad, Baroda, Mount Aboo.
108th " ..	869	1,122	24	39	48.14	1291.1	27.62	44.90	55.40	20.22	15.66	Nasirabad, 12; detachment at Nee-much.
Total Infantry ..	7,551	9,486	134	396	404.71	1256.2	17.75	52.44	53.60	19.56	15.59	

Judged by its moderate admission and death-rates, the health of the only regiment of Cavalry—the 3rd Hussars—was good, though the large proportion of men invalidated reduces their value. The regiment did not suffer from cholera, which attacked the Infantry regiment at the station, and only one admission for enteric fever took place—the last of the series of the outbreak of the disease, which occurred in the preceding year. Of the men invalidated, 8 were sent home on account of secondary syphilis, 11 on account of hepatitis, and 21 for general debility.

The health of the Royal Artillery, as estimated by the higher rates of nearly every result of sickness in it, was the least favourable of that of any arm; a very high admission rate, an average sick time to each soldier nearly one-fifth greater than that of Cavalry, or of Infantry, show the large excess of prevalence of sickness, whilst a death-rate exceeding that of the Command by 15·90 per 1,000 men, is evidence of the much greater intensity of the sickness affecting this arm. The invaliding rate however though considerably higher than that of Infantry, is lower than that of Cavalry. Between the results in the various component batteries of the four brigades of Artillery in the Command, the amount of sickness, its intensity, and the accruing temporary loss of service by the stay of the men in hospital, and of eventual permanent loss by the invaliding of a portion of them, there are wide differences, but taking the batteries together, in brigades, the differences in the results of sickness are not so considerable. The admission rates of the C Brigade, Royal Horse Artillery, and of the 4th Brigade, Royal Artillery, are identical; they are the highest of all, but the difference between the rate for them, and the rate for the 9th Brigade, which is the lowest, is only 85·6 per 1,000 men. A comparison of the rates of mortality gives no reliable evidence as to the comparative healthiness of the brigades, another, as they are disturbed by the influence of the association of unequal invaliding rates. The health of the C Brigade, Royal Horse Artillery, was the least satisfactory during the year; in spite of its having the lowest death rate, with a high rate of prevalence of sickness, it conjoined a longer average sick time to each man, a longer duration of each case of sickness, and a much higher proportion of invaliding than in any other brigade. Next to the C Brigade, the results in the case of the 4th Brigade were the most unfavourable. Arriving in the beginning of the year, its seven batteries were quartered at six different stations; during their service of nine months in the Command, a loss of one-eleventh part of the average annual strength, was sustained by deaths and invaliding. The mortality was chiefly caused by enteric fever, five of the batteries returned deaths from it. The two stationed at Kirkee, return no admissions for this disease, but they suffered comparatively severely from simple continued fever. Cholera, in a sporadic form, also attacked four of the batteries. The 9th Brigade shows the highest death rate in the arm, 46·93 per 1,000 men; the occurrence of the outbreak of cholera in the F Battery, at Neemuch, which has already been adverted to, chiefly contributed to this high proportion of deaths.

In Infantry, the health of the 2nd Battalion of the 7th Foot, stationed at Poona, was conspicuously the worst. The admission-rate, the death-rate, and the invaliding-rate, show that the amount and the intensity of disease were both greater than in any other regiment. Numerous admissions were due to fevers, chiefly paroxysmal, amongst the men of the head-quarters at Poona; the mortality was chiefly that occurring in the outbreak of cholera amongst the men of the detachment at Baroda. The highest standard of health of any regiment of Infantry, was that of the 2nd Battalion, 25th Foot, stationed at Aden. Its admission, death, and invaliding rates, are the lowest, and there were fewer constantly sick in it than in any other regiment.

In the following Table, the relation between length of residence in the Command (or in India), and the results to the health of corps, are shown:—

Regiments, &c.	Year of Service in the Command (or in India).	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average number of constantly sick.	Rate per 1,000 of Annual Strength.				Average sick time to each soldier.	Average duration of each case of sickness.
							Admitted.	Died.	Invalided.	Constantly sick.		
4th Brigade, R.A. ... 2nd Battn., 15th Foot	1st	1,622	2,571	56	65	94.95	1585.1	34.52	40.07	52.37	21.30	13.48
		886	1,919	23	95	61.04	2165.9	25.96	107.22	76.28	26.38	72.18
2nd Battn., 7th Foot	2nd	308	574	8	51	25.49	1863.6	25.97	165.58	82.76	30.21	16.21
C Brigade, R.H.A. ...	3rd	886	1,174	18	64	72.41	1325.1	20.32	72.23	81.73	29.83	22.51
68th Foot ..	4th	884	908	11	20	35.25	1027.1	12.44	22.62	39.87	14.55	14.15
56th Foot ..	5th	1,795	1,667	27	115	82.60	1485.8	15.04	61.07	46.02	16.79	18.08
66th Foot ..	6th	1,500	2,396	43	136	88.99	1537.3	28.66	90.66	59.32	21.65	13.59
83rd " ..		519	448	3	1	19.51	863.2	5.78	1.92	37.59	13.72	15.89
3rd Hussars 6th Brigade, R.A. ...	7th	925	1,358	12	41	47.85	1468.1	12.97	41.32	51.73	18.88	12.87
9th " ..		869	1,122	25	39	48.14	1291.1	28.77	44.90	55.40	20.22	15.66
2nd Battn., 25th Foot	8th											
1st Battn., 2nd Foot	9th											
108th Foot ..	Over 10 years											

Though not shown in every result of sickness, there is an indication that the least favourable health, was that of corps recently arrived in the Command; that this is not more distinctly evidenced, may be due to the small numbers under observation in each category, and perhaps to the disturbing influence of the unequal proportions of recently-joined men, who formed part of all the older regiments, excepting one. The influence of locality in conducing to sickness is more shown in the Table than that which is due to constitutional disturbance in young men newly arrived in a tropical country; by taking longer periods than annual ones, however, the

influence of locality, though not eliminated, is weakened, and in the following Table it will be seen that in spite of the circumstance that young regiments—young as regards periods of Service in the Command—were usually quartered at the more healthy stations, all the results of sickness in corps in the first category, were with one exception, unfavourable. Owing to the more acute character of the majority of the diseases in young, than in older regiments, the average duration of each attack of sickness was less, than in the case of the corps of longer service :—

Bombay.

Regiments, &c.	Years of service in the Command, or in India.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average number constantly sick.	Annual rate per 1,000 of strength.				Average sick time to each soldier.	Average duration of each case of sickness.
							Admitted.	Died.	Invalided.	Constantly sick.		
4th Brigade, R.A. ..	{ Not more than 3 years.	2,816	5,064	87	211	184.48	1798.3	30.82	74.93	65.51	Days. 23.91	Days. 13.30
2nd Battn., 15th Foot												
2nd " 7th "												
C Brig., R.H.A. ..												
68th Foot ..	{ Not more than 6 years.	3,565	3,749	56	119	190.26	1051.6	15.72	33.38	53.87	19.19	18.55
56th " ..												
66th " ..												
83rd " ..												
3rd Hussars ..	{ Not more than 9 years.	2,944	4,202	58	178	156.35	1427.3	19.70	60.46	53.11	19.38	15.22
6th Brigade, R.A. ..												
9th " ..												
2nd Battn., 25th Foot												
1st " 2nd "	{ 10 years and over	869	1,122	25	39	48.14	1201.1	28.77	44.90	55.40	20.22	15.66
108th Foot ..												

*Officers.**Bombay.*

The strength of the officers serving in the Command was 372, amongst whom 288 cases of sickness were returned. The deaths were 10, of which 6 occurred in India, and 4 elsewhere. 58 officers were invalided during the year; the proportions given by these numbers are, for cases of sickness, 774·2; for deaths, 26·88; and for invaliding, 155·9 per 1,000 of the strength.

There was no material difference in respect of the kinds of diseases affecting the officers and those affecting the non-commissioned officers and men. *Fevers*, and *diseases of the digestive system*, contributed more cases of sickness than any other orders of diseases. The deaths in India, were due to enteric fever (1), cholera (2), dysentery or diarrhœa (2), suicide (1).

Women.

The average annual strength of the wives of the non-commissioned officers and men serving in the Command, was 1,165, amongst whom there were 1,068 admissions into hospital for illness, and (in India) 21 deaths. The proportions given by these numbers are, for admissions, 916·7, and for deaths, 18·03 per 1,000 of the strength.

More than one-third of the whole number of admissions were for *fevers*, chiefly paroxysmal; there were eight admissions for cholera; conjunctivitis was of relatively frequent occurrence. *Diseases of the digestive system*, occurred in the proportion of 214·6 per 1,000 of the strength (being 28·3 per 1,000 lower than the rate of admissions of the men for the same order of diseases). The cases of abortion were 23 in number, and (not included in the admissions stated above), there were 293 admissions for childbirth. The deaths (in India) were due to enteric fever (1), simple continued fever (1), remittent fever (1), cholera (5), cancer (1), consumption (1), disease of the heart (1), pneumonia (1), diseases of the digestive system (5)—one of which is returned as due to dyspepsia; 3 deaths were due to the puerperal state, and 1 was homicidal.

Children.

In an annual average strength of 2,322 children of the non-commissioned officers and men there were 1,857 admissions into hospital, and 177 deaths (in India), being in the proportions of 799·8 and of 76·23 per 1,000 of the strength respectively.

Eruptive fevers, caused 132 admissions, of which 123 were for measles, from which disease there were 12 deaths; the fatality of it would therefore appear to be in the rate of 97·56 per 1,000 attacks, but deaths from secondary diseases consequent on measles may not have been returned in the number. *Continued fevers*, caused 118 admissions, one attack (from enteric fever) was fatal. *Paroxysmal fevers*, caused 427 admissions, being in the proportion of 188·6 per 1,000 of the strength. There were three deaths in this group, all due to remittent fever. The admissions for *cholera*, were 13, the deaths 7, showing a considerably lower proportion of fatal attacks than in those occurring amongst the men. *Other diseases* of the febrile group, caused 21 admissions, of which 14 were due to whooping-cough; one attack of this disease was fatal. *Constitutional diseases*, caused 51 admissions, of which five were due to syphilis. No admission for pulmonary phthisis is returned, apparently this disease is replaced by mesenteric tabes, for which there were 17 admissions, 10 of the illnesses being fatal. *Diseases of the nervous system*, caused 52 admissions and 39 deaths; of the latter, 31 were due to convulsions. *Diseases of the eye*, caused 266 admissions, of which all but 19 were due to conjunctivitis; the rate of admissions for diseases of this order, 114·5 per 1,000, is nearly five times greater than the corresponding one for the men. *Diseases of the respiratory system*, caused only 84 admissions; of the five deaths, two were due to croup. *Diseases of the digestive system*, caused 445 admissions and 71 deaths, being in the proportions of 191·6, and of 30·57 per 1,000 of the strength respectively; 20 of the deaths from diseases classed in this order, were due to teething, and might probably be more appropriately placed amongst the deaths in diseases of the nervous system. From dysentery, and from diarrhœa together, the deaths were 47 in number. *General debility*, caused 129 admissions; of the attacks, 18 were fatal.

SANITARY REPORT.

Surgeon-General Inglis, C.B., reports :—

Barracks.—At Colaba six single-storied barracks have been taken into occupation during the year. The infantry barracks at this station are reported as too close together, and not raised on sufficiently high plinths. The Quartermaster-General reports that measures are being taken to provide better barracks for the Dépôt.

At Belgaum new upper-storied barracks and outbuildings for a field battery have been taken into use, and at Purandhar a new permanent barrack has been built.

At Baroda the barracks are old and defective in general construction. At Ghorpoorie, Poona, the barracks having many defects; a special committee has reported upon them, and improvements are to be carried out.

Guard Rooms and Cells.—A new guard-room and cells at Colaba are reported a great improvement on those previously in use.

At Aden a new guard-room at the Main Pass is reported in course of erection.

Drainage.—At Nasirabad the surface drainage in the Artillery lines is still commented on as defective. At Ghorpoorie, Poona, the surface drainage has been reported as unsatisfactory, and remedial measures are to be adopted.

At Colaba, also the Quartermaster-General reports that measures are being taken to improve the surface drainage.

Ventilation.—This has, on the whole, been satisfactory. At Ghorpoorie, Poona, and at Colaba the ventilation of the Infantry Barracks is reported to be impeded by the bungalows being too closely crowded together.

Warming.—Artificial warming is not required at most of the stations in this Command. In Sind, however, the cold is severe for one or two months of the year, and means of warming are desired by the medical officers in that district.

Lighting.—Complaints as to the lighting of the barracks are very general. The Quartermaster-General reports that every endeavour will be made to introduce kerosine lamps as soon as possible.

Flooring.—At some stations there are still objectionable mud or earthen floors, as at Colaba and Kirkee, but there are no funds at present available to remedy this defect.

Ablution and Bath Accommodation.—This has, on the whole, been good. At Ghizree a bench is required for supporting the basins in the women's ablution-room.

At Deesa the ablution accommodation is reported very inferior, but the Quartermaster-General remarks that with the present restriction on expenditure for public works it would be useless to apply to Government to improve the ablution-rooms. The defective ablutionary accommodation in the old infantry barracks at Mhow will be remedied.

Cooking.—The usual Indian plan of cooking is generally adopted, but at some stations Dean's apparatus is also in use.

Latrines.—The dry-earth system of conservancy is in use, except at stations (such as Colaba and Aden) where dry earth is not available in sufficient quantity, and McDougall's Powder has to be used instead. With regard to the dry-earth system, the Deputy Surgeon-General, Poona Circle, remarks that, to make it thoroughly efficient, some mechanical contrivance is needed to cover up the soil, as experience shows that the men neglect to use the dry earth.

Water Supply.—The water supply has generally been good and abundant. At Colaba, for two or three months of the dry season, the supply of Vehar Lake water was insufficient, and had to be supplemented by water brought by carts. Nasirabad is still dependent on a single well two miles distant for its supply of drinking water.

Dieting.—The rations, on the whole, have been very good. Beef is issued on five, and mutton on two, days each week. At some stations the size of the sheep supplying the mutton is complained of. They are so small and thin that the proportion of bone must be greater than that allowed for.

Bombay

Bombay.

Clothing.—The clothing is suitable for the climate. Cotton or serge is worn, according to the season.

Canteens.—The artillery canteens at Karachi and Neemuch, and the infantry canteen at Wanowrie, Poona, are reported as being too small and badly ventilated.

At Colaba Depôt the canteen is reported quite unsuitable for the purpose—a low, ill-ventilated room.

Duties.—The ordinary routine of duties have not been prejudicial to health of troops.

A Battery of Horse Artillery suffered a good deal from its visit to Bombay in October, to take part in the reception of H.R.H. the Prince of Wales. It was encamped at Parell, and the disease contracted in the damp and hot atmosphere of Bombay Island was not fully developed until the return of the battery in December to the elevated position and dry climate of the Deccan.

Hospitals.—At Colaba the Royal Artillery hospital has been converted into a station hospital. The position of this hospital, however, is bad, being on low ground, and to leeward of, and shut in by artillery barracks. The construction of a new hospital is under consideration. The old hospital at Ahmedabad was completely destroyed by a flood in September. The native infantry hospital, in which the sick of the European troops are at present treated, is reported to be quite unsuited for the purpose during the hot and rainy seasons.

At Wanowrie, Poona, the site, plan, and surroundings of the hospital are objectionable.

At Deolali the hospital accommodation during the trooping season is quite inadequate, and even after the quarters of the various medical subordinates have been occupied as wards the accommodation has still to be supplemented by tents.

Section II.

On the Extent of Invaliding.

India.

2,744 non-commissioned officers and men were invalided in India, being in the proportion of 46·24 per 1,000 of the strength, this shows an increase of 6·05 per 1,000 over the rate of the preceding year. For the Bengal Command, the rate is higher than in 1875 by 4·19, for the Madras, by ·71, and for the Bombay, by 19·03 per 1,000 men. The large increase in the rate for Bombay, is in a great measure due to the circumstance of a change having been made in the classification of invalids in the present year; hitherto all men who left India, on account of illness during the year, were reckoned as the invalids of the year, but in 1875, all men who were passed by invaliding boards during the year are returned as the invalids of it, whether they left India, or not. This change is designed to bring the statistics of the invaliding of the Army in India, into closer correspondence with those of the other results of sickness—the admissions into hospital, the deaths, &c., in the particular year; and no doubt on the whole it does so, but as it must often happen that the causes which eventually necessitated invaliding, affected the soldier years before his health finally broke down, the loss cannot be strictly apportioned to the year in which the invaliding occurs.

In the following Table the classes and orders of diseases for which men were invalided from the three Commands are shown :—

Orders.	Invalids sent home from—				Invalids from India discharged the Service at Netley.
	Station	Bengal.	Madras.	Bombay.	
	Strength	37,769	11,233	10,342	59,344
	I. General Diseases.				
1	Febrile Group	45	3	78	..
2	Constitutional „	273	109	107	229
	II. Local Diseases.				
	Diseases of the—				
1	Nervous System	95	36	34	25
2	Eye	22	2	13	24
3	Ear	15	9	3	22
4	Nose	1	..	1	..
5	Circulatory System	228	64	51	167
6	Absorbent „	1	..	3	..
7	Ductless Glands .. ..	..	..	..	1
8	Respiratory System	53	17	22	21
9	Digestive „	325	238	114	71
10	Urinary „	22	8	16	16
11	Generative „	2	3	3	3
12	Organs of Locomotion	31	8	7	23
13	Cellular Tissue	2	..	1	3
14	Cutaneous System	7	6	12	8
	III. Debility. „ ..	369	82	152	51
	V. Injuries.				
2	Accidental	29	7	11	20
	VI. Surgical Operations..	3	1	..	5
	Total	1,523	593	628	689
	Ratio per 1,000 of { 1875	40·32	52·79	60·72	11·61
	mean strength { 1865-74	44·48	48·27	35·13	17·12

For diseases of the *constitutional group*, fewer men are invalided from Bengal, and Madras, than in the preceding year; for diseases of the *circulatory system*, more men were invalided from Bengal, 94 of them on account of palpitation, for which disability 29 men were also invalided from Madras. For diseases of the *digestive system*, the rate of invaliding for Bengal is not materially different in the two years, but in the instance of Madras it is higher in the present year. For *debility*, one-third more men were invalided from Bengal than in 1874; no explanation is apparent for the large increase in the number of men sent to England on account of a condition, for recovery from which, it might be imagined that a residence at a hill station in the country, was especially likely to be sufficient.

Section III.

Mean Daily Sick.

The average number of non-commissioned officers and men always ineffective from sickness in 1875, was in Bengal 2123·69, in Madras 619·25, and in Bombay 583·96.

The usual information calculated from these numbers is given in the sub-joined Table:—

India.

	Bengal.		Madras.		Bombay.	
	1875.	1865-74.	1875.	1865-74.	1875.	1865-74.
Ratio per 1,000 constantly sick ..	56·23	56·64	55·13	60·84	56·46	53·21
Average sick time to each soldier ..	20·52	20·67	20·12	22·21	20·61	19·42
Average duration of cases..	15·16	13·90	18·73	16·75	15·02	14·00

Section IV.

On the influence of Age on Mortality.

The following Table shows the details of the numbers and deaths, at specified ages, of the troops serving in India in 1875, and also those of the average of the ten previous years :—

	Under 20.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		40 and upwards.	
	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.	Average Strength.	Died.
Bengal	721	8	11,884	170	11,544	184	6,443	113	6,026	141	1,241	55
Madras	197	1	3,106	37	2,892	28	1,770	21	1,538	46	341	20
Bombay	142	...	2,584	46	2,792	43	1,373	28	1,156	31	229	21
Total	1,060	9	17,574	253	17,228	255	9,586	162	7,720	218	1,811	96
Ratio of deaths per 1,000 of Strength 1875	8·42		14·40		14·60		16·90		28·24		53·01	
Ditto, 1865-74 ...	8·34		16·28		21·50		30·49		39·49		53·33	

Accidental

under 30.

Died.

Invalided.

42

128

14

48

56

176

8

97

47

dia, arrange

7 and

Invalided.

Strength.

105

2,615

60

272

165

2,887

Accidental deaths, and deaths from violence have not been included :—

Under 30.		30 and under 35.				35 and under 40.				Over 40.			
Died.	Invalided.	Strength.	Admitted.	Died.	Invalided.	Strength.	Admitted.	Died.	Invalided.	Strength.	Admitted.	Died.	Invalided.
42	128	5,396	6,151	99	194	4,520	4,957	126	410	1,163	1,508	44	207
14	48	1,726	1,639	35	84	1,436	1,461	33	116	376	472	23	55
56	176	7,122	7,790	134	278	5,956	6,418	159	526	1,539	1,980	67	262
108		1093·8				1077·6				1286·5			
97		18·82				26·70				43·54			
47		39·03				88·33				170·24			

India, arranged in biennial periods, is shown in the following Table, in which deaths

7 and under 8 years.					8 and under 9 years.				9 and under 10 years.				Over 10 years.			
Invalided.	Strength.	Admitted.	Died.	Invalid d.	Strength.	Admitted.	Died.	Invalided.	Strength.	Admitted.	Died.	Invalided.	Strength.	Admitted.	Died.	Invalided.
105	2,615	3,556	35	141	1,116	1,850	21	74	1,250	1,384	12	80	3,351	3,632	80	226
60	272	585	1	10	462	342	4	9	192	708	3	16	1,033	1,085	27	43
165	2,887	4,141	36	151	1,578	2,192	25	83	1,442	2,092	15	96	4,384	4,717	107	269
1434·4					1389·1				1450·7				1099·8			
12·37					15·84				10·40				24·41			
52·30					52·60				66·57				61·36			

XIV.—ON THE HEALTH OF THE TROOPS ON BOARD SHIP.

STATISTICAL REPORT.

The Troops on board ship during the year, as shown by the Returns
 a. received in the Army Medical Department, were as follows :—

I.	Corps and drafts proceeding on Foreign Service	....	10,198
II.	Do. returning from Foreign Service	....	6,431
III.	Do. passing by sea from one Command to another,		
	White Troops	....	3,181
	Do. Do. Do. Black Troops	....	109
IV.	Invalids returning to England	....	2,856

I. TROOPS PROCEEDING ON FOREIGN SERVICE.

The average annual strength represented by the 10,198 non-commissioned officers and men, who embarked for service abroad during the year is 931; there were 404 admissions into hospital, and 10 deaths, amongst them, being in the proportions of 434 and 10·73 per 1,000 of the strength respectively; the proportion of admissions is nearly a-third lower, but the proportion of deaths is double, that of the rate of the preceding year.

The classes and orders of diseases by which the admissions and deaths were caused are shown in the following Table :—

Station.		To all Stations, Abroad.			
No. of N.-C. O. and men Embarked		10,198			
Average <i>Annual</i> Strength		931			
Order.	Diseases.	Admitted.	Died.	Ratio per 1,000.	
				Admitted.	Died.
I. <i>General Diseases.</i>					
1	Febrile Group	28	1	30·1	1·07
2	Constitutional „	68	1	73·0	1·07
II. <i>Local Diseases.</i>					
1	Nervous System	1	..	1·1	..
2	Eye	7	..	7·5	..
3	Ear	1	..	1·1	..
5	Circulatory System	2	..	2·1	..
6	Absorbent „	6	..	6·4	..
8	Respiratory „	88	6	94·5	6·45
9	Digestive „	47	..	50·5	..
10	Urinary „	42	..	45·1	..
11	Generative „	8	..	8·6	..
12	Organs of Locomotion	1	..	1·1	..
13	Cellular Tissue	13	1	14·0	1·07
14	Cutaneous System	52	..	55·9	..
III. <i>Conditions, &c.</i>					
	Debility	7	..	7·5	..
V. <i>Injuries.</i>					
2	Accidental	33	1	35·5	1·07
	Total	404	10	434·0	10·73

Excepting drafts amounting to 2,363 non-commissioned officers and men for the Mediterranean, Ceylon, Singapore, Barbadoes, Halifax, and the Fiji Islands, all the troops in this section embarked for India, and it is amongst them that the greatest proportionate amount of sickness and of mortality occurred; the rate of admissions in troops embarked for India is 469·8, and that of deaths 11·55 per 1,000 of the average annual strength, whilst in troops embarked for all other places the rates are 250· and 6·58 per 1,000 respectively. The important differences in the conditions affecting each—such as the season of the year, and the length of time the troops were on board ship, &c., prevent a strict comparison being made as regards the results to health, in the case of the two contrasted bodies of troops; but the fact remains that the health of the men who were embarked in great numbers in large ships was inferior to that of men embarked in lesser numbers in smaller ships; the diseases causing deaths originated for the most part, soon after the embarkation of the troops, and therefore anterior to the time in which the influence of a tropical climate would be experienced.

GENERAL DISEASES.—*Diseases of the Febrile Group.*—The prevalence of fevers was in a lower rate than that of the preceding year; one admission was due to an eruptive fever—measles; *simple continued fever* caused 12 admissions; one illness was fatal; respecting a case of this disease which occurred towards the end of the voyage of H.M.S. “Jumna” to Bombay, in the month of March, the Medical Officer states, that the symptoms assumed a typhoid character, and the man was transferred to hospital at Bombay.

The admissions for *Diseases of the Constitutional Group*, are in a lower rate than that of 1874; most of them were due to syphilis; the death in this group was that of a man in whom affection of the brain came on in the course of an attack of acute rheumatism.

Diseases of the Respiratory System.—The rate of admissions of diseases in this order is more than double, and the rate of mortality is four times higher than that of the preceding year. Bronchitis, and pneumonia, caused all the admissions, excepting four which were due to pleurisy. The deaths resulted from pneumonia, and except one, all of them occurred amongst men proceeding to India. The Medical Officer in charge of the troops on passage to Bombay in H.M.S. “Jumna,” on board of which 16 admissions from pneumonia took place, writes in connection with them:—“I am informed that there were four cases of a similar nature among the crew of the vessel. The type of the disease was what is generally termed acute croupous pneumonia; very few of the cases presented catarrhal or bronchitic symptoms, and it is remarkable the immunity there was generally from these latter affections during the time the pneumonia prevailed. . . . The occurrence of so many cases naturally calls for an inquiry into the cause or causes in which the affection originated. I understand that on several occasions pneumonia has prevailed in a similar way on board some of the other troop ships but unfortunately I have not at my disposal any account of the fact; I am told, however, that there were two cases among the crew of the vessel in the corresponding voyage of last year. It may be well to turn attention to the following points with the view of ascertaining the cause, namely, 1st, over-crowding; 2nd, temperature; 3rd, exposure; 4th, epidemic influence.”

INJURIES.—*Accidental.*—The death returned in this order was from drowning.

II. TROOPS RETURNING FROM ABROAD.

The number of effective troops embarked for England from abroad, was 6,431, giving an annual average strength of 620 non-commissioned officers and men. The admissions into hospital were 289, and the deaths 3, being in the annual rates of 466· and 4·84 per 1,000 men respectively; both are much lower than the corresponding rates of 1874, but the results of that year were disturbed by the influence on them of the sickness occurring in the troops returning from the Gold Coast Expedition. Taking 1873 as the year for com-

*Troops on
Board Ship.*

parison, it is seen that in the present year the rate of admissions is higher but the rate of deaths is little more than one-third of the corresponding rate of that year.

The following Table shows the admissions and deaths in the different classes and orders of diseases :—

Order.						From all Stations Abroad.			
	No. of men Embarked					6,431			
	Average Annual Strength					620			
	Diseases.					Admitted.	Died.	Ratio per 1,000	
								Admitted.	Died.
	I. General Diseases.								
1	Febrile	Group				40	..	64·5	..
2	Constitutional	„				60	..	96·8	..
	II. Local Diseases.								
	Diseases of the—								
1	Nervous System	.. ..				3	1	4·8	1·61
2	Eye					8	..	12·9	..
5	Circulatory System	.. ..				1	..	1·6	..
6	Absorbent „	.. ..				7	..	11·3	..
8	Respiratory „	.. ..				36	2	58·1	3·23
9	Digestive „	.. ..				42	..	67·8	..
10	Urinary „	.. ..				20	..	32·3	..
11	Generative „	.. ..				3	..	4·8	..
12	Organs of Locomotion	.. ..				1	..	1·6	..
13	Cellular Tissue	.. ..				10	..	16·1	..
14	Cutaneous System	.. ..				26	..	41·9	..
	III. Conditions.								
	Debility	.. ..				5	..	8·1	..
	IV. Poisons.					2	..	3·2	..
	V. Injuries.								
2	Accidental	.. ..				25	..	40·2	..
	Total					289	3	466·0	4·84

GENERAL DISEASES.—Febrile Group.—There were 2 admissions on account of measles, on board H.M.S. “Malabar,” the disease being at the time epidemic amongst the children on board. *Enteric fever*, caused 1 admission, that of a man of the 107th Regiment, on the voyage from Bombay in H.M.S. “Malabar.” In this corps also on the same voyage, there were 5 admissions for simple continued fever, 2 cases of which on arrival were sent to hospital at Portsmouth. *Ague*, caused more than half of all the admissions in the febrile group.

Diseases of the Nervous System.—The death in this order was from encephalitis.

Diseases of the Respiratory System.—Of the admissions in this order 6 were due to pneumonia; 2 of the cases were fatal.

III. TROOPS PROCEEDING BY SEA, FROM ONE STATION TO ANOTHER.

The number of non-commissioned officers and men of the white troops embarked was 3,599, giving an average annual strength of 186; the admissions into hospitals were 62; there were 2 deaths; the rate of admissions is 333·3, and of deaths 10·74, per 1,000 of the mean annual strength.

The strength of the non-commissioned officers and men, black troops, embarked for passage from one station to another abroad, was 109, giving an annual average strength of 15; the admissions into hospital were 12, being in the annual rate of 923·1 per 1,000 of the strength.

The classes and orders of diseases by which the admissions and the death were caused amongst the troops in this section, are shown in the following Table:—

				White Troops.				Black Troops.			
Strength embarked				3,599				109			
Average Annual Strength				186				13			
Order.	Diseases.	Admitted.	Died.	Ratio per 1,000.		Admitted.	Died.	Ratio per 1,000.			
				Admitted.	Died.			Admitted.	Died.		
I. General Diseases.											
1	Febrile Group	4	..	21·5	..	..	..	..	..
2	Constitutional „	9	..	48·4	..	4	..	307·7	..		
II. Local Diseases.											
Diseases of the—											
1	Nervous System	1	..	5·4	..	..	..	..	..
5	Circulatory System	1	1	5·4	5·37	..	..	..	..
6	Absorbent „	1	..	5·4	..	..	..	..	..
8	Respiratory „	5	..	26·9	..	..	..	..	..
9	Digestive „	12	..	64·5	..	1	..	76·9	..		
10	Urinary „	3	..	16·1	..	3	..	230·8	..		
11	Generative „ .. ..	..	..	..	..	1	..	76·9	..
12	Organs of Locomotion .. ..	..	..	..	..	1	..	76·9	..
13	Cellular Tissue.. ..	6	..	32·2	..	..	..	..	..
14	Cutaneous System	2	..	10·7	..	..	..	..	..
IV. Poisons											
1	.. ..	1	..	5·4	..	..	..	..	..
V. Injuries.											
2	Accidental	17	1	91·4	5·37	2	..	153·9	..		
Total		62	2	333·3	10·74	12	..	923·1	..		

The deaths amongst the white troops embarked were from disease of the heart, and from accidental drowning.

IV. INVALIDS RETURNING TO ENGLAND.

The number of invalids embarked for England was 2,856, giving an average annual strength of 261 non-commissioned officers and men. There were 34 deaths at sea amongst invalids; as in former years, they have been added to those of the troops in the Commands from which the men were were invalided.

APPENDIX.

APPENDIX No. I.

REPORT ON HYGIENE FOR PART OF 1875.

By F. de CHAUMONT, M.D., Surgeon-Major, Acting Professor of Hygiene,
Army Medical School, Netley.

In the last report furnished by the late Dr. Parkes, he carried down his account of the progress of hygiene to the early part of 1875, only a short time before the illness, which was the commencement of his fatal malady, attacked him. The irreparable loss which his death has inflicted upon this country and the world at large, has been eloquently set forth by more than one renowned writer, in tones that have found an echo in the hearts of men of all ranks in every civilised land. One of the most valuable of his many good works was the series of reports on the above subject which he furnished annually to this blue-book. The last volume was published so soon after the previous one that there was no time for the preparation of a report, and now the hand is still that did the work so well. At the present time, both on account of a very great pressure of work, and also because it has been called for a good deal sooner than I anticipated, I am unable to do more than offer a very brief and meagre notice of some points of hygienic importance published in 1875, and I do so, less because I hope to give an abstract of much present usefulness, than from a desire not to break too much the continuity of these reports. I hope in the next volume to be able to offer one more extended, and giving a better précis of what has been done in the Science of Hygiene.

State Medicine.—General Hygiene.—The subject of state medicine is attracting great attention in all quarters, and diplomas are now given in several schools, Cambridge, Edinburgh, Dublin, and London Universities, whilst others will in all probability follow the example thus set. Doubtless by and bye a diploma of the kind will be a necessity for holding public appointments. With a view to draw attention to the subject, the Society of Apothecaries requested me to deliver a course of six lectures at their Hall in Blackfriars during May and June 1875. These lectures have since been published at the request of the Society.*

A new sanitary journal, the *Sanitary Record* was commenced by Messrs. Smith, Elder & Co. in 1874, and has been continued with success. Articles on the subject of hygiene have also been numerous in other journals.

In France, *Le Journal d'Hygiène* has been commenced by Dr. Prosper de Pietra Santa.

An ingenious paper by Dr. Richardson, F.R.S., read before the Social Science Congress at Glasgow, attracted a good deal of attention. It was a sketch of an ideal city of health, Hygiea, in which all sanitary appliances were to be carried out in perfection, with the effect of reducing the death rate to 5 or even less per 1,000; amid much that was fanciful there were many interesting points in it, although the prospect of such a state of things must be remote, if ever at all conceivable, until man in general is very different from what he is.

I may also notice the "Dictionary of Hygiene," compiled by Mr. A. W. Blyth, on the basis of Ambrose Tardieu's work.

The American Government is still active in its publications, among which have been the "Report on the Hygiene of the United States Army," by

* Smith, Elder, & Co.

Assistant Surgeon Billings, and the "Report on the Hygiene of the Navy," both containing much valuable information.

In this country the publication of the reports of the Medical Officer of the Privy Council is happily being continued, affording as they do a body of information of the highest possible value. It may be proper here to refer to the loss the Department of Public Health has sustained in the retirement of Mr. J. Simon, who has done so much for the health and well-being of the nation. The office, in a somewhat altered form, has been conferred upon a worthy successor in the person of Dr. E. C. Seaton.

Sanitary Legislation.—The chief sanitary measures were the consolidation of previous sanitary measures in the Public Health Act, already alluded to in last report, the amended Adulteration Act, and the Labourers' and Artizans' Dwellings Act. The River Pollutions Bill did not pass, but in a modified form it will probably become law in this present Session (1876).

Soil, &c.—One of the most important works of the year has been the report of Messrs. D. D. Cunningham and T. Lewis on the carbonic acid in the soil, the height of the ground water, the meteorological conditions of the atmosphere, and the amount of cholera, fever, dysentery, &c., in Calcutta. It is the commencement of what we may hope will prove a most valuable course of investigation as to the causation of disease. The experiments were carried on during the years 1873 and 1874, and the results are tabulated as well as shown by means of graphic representation. The temperature of the soil was obtained from thermometers thrust into it through the sides of a bricked pit and protected by a wooden plug. The air for CO_2 was drawn by means of leaden pipes having a perforated bulb end inserted through an inverted flower-pot; the depths chosen being 3 and 6 feet. The ground water was measured in the usual way. The general conclusions are the following:—

The air temperature does not affect the CO_2 of the soil.

The wind does not affect the "

The chief factor affecting the CO_2 of the soil is moisture, rainfall influencing the upper stratum, the ground water the lower. The greatest amount of CO_2 is in the lower stratum:—

Maximum in upper	....	....	....	....	....	7
" in lower	....	....	....	....	....	12
Minimum in upper	....	....	....	....	....	3
" in lower	....	....	....	....	....	7

Volumes per 1000.

The CO_2 in the two strata diverge when low, and approach each other when high. This is the reverse of what has been observed at Munich.

The amount of cholera varies inversely as the height of the ground water, in accordance with Pettenkofer's views.

The maximum of fever corresponds with the maximum of CO_2 in soil and the highest ground water.

Dysentery shows two maxima, one at the rise of the water level and the other at the same point in the fall.

Temperature of the soil varies as follows:—

In hot weather the upper layer is hottest, in cold the lower layer, and the conditions are these—

Hot weather.

Air, hottest
Upper stratum of soil.
Lower " "

Cold weather.

Lower stratum of soil, hottest.
Upper " "
Air.

During rain this correspondence ceases.

Air.—Numerous papers on air have appeared and a large number of appliances for ventilation recommended. Among others, the system patented by Tobin has attracted a good deal of attention, and been the subject of much controversy. It has been applied on an extensive scale to St. Mary's Hospital, Paddington, the condition of whose ventilation I examined in July 1875, at the request of the committee of management. The peculiarities of construction of the building seemed to make it well adapted for the introduction of Tobin's tubes, as suggested by Mr. Salter, the architect. Some very interesting points came out in the experiments, but as I am about to begin a second series for

comparison since the alterations, I shall defer mentioning them in detail until next report.

With regard to the construction of hospitals there seems a somewhat strong tendency, particularly in America, to favour one-storeyed buildings of inexpensive materials. The recent advance made in the use of concrete, as shown by Messrs. Lascelles, Tall, &c., at the Institute of British Architects, seems to promise an excellent and durable material, by means of which strong, water-tight, fire-proof buildings may be constructed, which can be warmed and ventilated with ease and without danger.

Some interesting papers have appeared by M. Schlœsing in the "*Comptes Rendus*,"* on the subject of ammonia in the atmosphere, and its relation to the soil and water. Although directed chiefly to Agricultural purposes they may ultimately have some value hygienically as well.

Hygrometry.—Mr. Lowe has introduced a new arrangement of hygrometer (or psychrometer) called the Hygrodeik, to facilitate the rapid reading off of the relative humidity by the dry and wet bulb instrument.

Pressure.—I may notice a work by Jourdanet, whose observations are already well known, "*Influence de la pression de l'air sur la vie de l'homme* (Masson).

Water Analysis.—The controversy still goes on between the supporters of Frankland and Wanklyn as to the comparative value of the methods of estimating the organic constituents. For the public services, Frankland's method is out of the question except in stationary laboratories, and Wanklyn's albuminoid ammonia process, although imperfect in its indications, remains as yet the only practicable method. There is, however, an advantage in continuing along with it the determination of the oxygen required for organic matter by the permanganate test.

Mr. J. Falconer King, the city analyst of Edinburgh, proposes to use caramel as a comparison test for the ammonia process ("*Chemical News*"). We had tried this at Netley previously, but found it difficult to get the tint sufficiently correct to be practically useful. Mr. Wanklyn suggests the employment of the soap test for determining the magnesia in water. This is simply Boutron and Boudet's method, which we have used at Netley for many years. It gives fairly accurate results when carefully done, but requires practice.

Mr. E. Nicholson proposes a new method for the estimation of nitrites in water, by first setting free the iodine by means of sulphuric acid, and then liberating the free iodine either with arsenious acid or by means of a colour test with iodine of potassium, starch and permanganate of potassium. I have not tried this yet, so as to speak of its practicability.

Dr. J. D. Macdonald, R.N., F.R.S., Professor of Naval Hygiene at Netley, has published a "*Guide to the Microscopical Examination of Drinking-Water*" (Churchill), which has proved a most useful work. It is used as a text book at Netley, and has proved very convenient for the purpose. The drawings (with a few exceptions, such as the plate of Bacteria from Cohn) are original and from nature by the author himself.

Water Filtration.—An important point has been brought out by the report of the River Pollution Commission—viz., the tendency of animal charcoal to favour the growth of the lower forms of life. This has induced Mr. Bischof to make a change in his spongy iron filter, which originally used animal charcoal in part. For this, prepared sand is now substituted, consisting of very fine gravel mixed with pyrolusite; by this means a filtering medium is obtained entirely free from matter of organic origin. I am at present engaged in making an experimental inquiry into the working of this and other filters.

Major Crease has introduced a very useful form of his filter for ambulance and field purposes, it can be used either as an ordinary or a cistern filter.

Food and Adulteration.—The Society of Public Analysts has held numerous discussions on the question of adulteration, and has decided at least provisionally, upon the following standards, which may be useful to medical officers.

New Milk to contain not less than 9 per cent. by weight of solids not fat.
 ,, ,, not less than 2.5 of butter fat.

* "*Comptes Rendus de l'Academie*," 1875, vols. i. and ii.

Skim Milk to contain not less than 9 per cent. of solids not fat.

Butter " " 80 " of butter fat.

Tea to contain not more than 8 per cent. of mineral matter calculated on the tea dried at 100° C., of which 3 per cent. shall be soluble.

Tea to contain at least 30 per cent. of extract as sold.

Cocoa " 20 " of cocoa fat.

Vinegar " 3 " of acetic acid.

With regard to tea, Mr. Wigner contributes* a long and exhaustive paper on the subject. He does not consider the determination of the extract of much use as a guide to the relative value of the tea, although it may be useful as indicating whether or not old leaves have been mixed with the sample. He points out, however, that as much may be known from the ash, which is usually about 5·8 to 6 per cent. in genuine teas, of which about one half or more is soluble in water. He also points out the hygroscopic properties of tea if exposed to the air. This is well known, so much so that in India and China tea is a favourite bed for keeping cigars, in the belief that it keeps them dry by absorbing the moisture itself.

At Netley all the tea taken into use in the hospital is analysed, and the following may give an idea of the composition of it, the price by contract being 2s. 4d. per lb.—

	1	2	3	4	5	6	7	8	9	10
Water per cent. ...	10·4	9·9	8·2	9·3	8·2	7·1	6·6	5·5	4·3	5·3
Solids	89·6	90·1	91·8	90·7	91·8	92·9	93·4	94·5	95·7	94·7
Extract	27·0	27·2	28·2	30·1	30·5	31·9	31·1	32·2	26·5	26·7
Ash	5·1	6·3	5·6	7·23	6·4	6·3	6·5	6·6	7·0	6·8
Acidity of infusion (as oxalic acid) ...	1·9	2·1	3·1	2·8	2·4	2·8	2·6	2·9	2·8	2·9
Alkalinity of ash (as soda)	0·11	0·43	0·1	0·56	0·17	0·36	0·38	0·3	0·35	0·377
Chlorine of ash... ..	0·055	0·067	0·050	0·120	0·062	0·082	0·062	0·073	0·075	0·089

Of these, No. 4 was not a contract sample. Nos. 1, 2, 3, 5, 6, 7, 8, were reported good, and equal to the sample. Nos. 9 and 10 were condemned as inferior, the amount of extract being small and the flavour inferior.

On the subject of adulterations I may notice a new edition of Hassall's work, and also a new edition of Chevalier and Baudrimont's "Dictionnaire des Falsifications."

Scurvy.—Mr. Galloway has published a small pamphlet with the view of urging that scurvy is due chiefly to salt meat being deprived of some of its salts, especially the potash and phosphoric acid; he thinks that if these were restored that scurvy might be cured. He even suggests that the small amount of potassium-phosphate in lime-juice may be the efficient agent, and takes exception to Dr. Parkes, who thought it unlikely on account of the smallness of the quantity—about half a grain to the ounce. The *onus probandi* certainly lies with Mr. Galloway. In connection with this point I may refer to the researches of Panum* who investigates some points of nutrition. He shows that pure albuminates may (in contradiction to Liebig's views) be assimilated by dogs even when deprived of salts. The addition of phosphate of potash to a diet of powdered albuminate, fat, starch, and water, did not increase its nutritive value, either as shown by the production of urea or by preserving weight. The chief effects were: more water drunk and greater loss by insensible perspiration. The amount of potassium phosphate required was very small, and might

* "Chemical News," vol. xxxii.

† "Nordiskt Medicinskt Arkiv," vol. vi., No. 19; see "Medical Record," 14. 4. 76.

be supplied by barley or almost any food. This being the case, how can the small amount of phosphate of potash in lime-juice be the efficient agent? It is also well known that scurvy may be induced by mere monotony of food when all the necessary constituents are present.

Alcohol.—On the vexed question of alcohol the most important contribution has been the monograph of the late Dr. Parkes, "On the issue of a Spirit Ration in the Ashanti Campaign," in which the evidence is reviewed with great judgment and without bias. A number of medical officers and others believed it useful under certain circumstances, particularly when taken quite at the end of the day's work, with a prospect of some hours' rest before starting afresh, while the use of spirits was condemned by all during actual work.

On nutrition generally I may call attention to a curious paper by M. Béchamp.* He notes the existence of what he calls microzymes generally in all the organs of the body. These may be described as minute, granular, particulate, and insoluble bodies, which appear to be the active elements on assimilation. They can be separated by a special process, and their action in starch and sugar studied. Those of all the organs in the body are active on starch and sugar, except from the brain. On the other hand, in the very young foetus the brain microzymes are active. The microzymes of the foetus are generally active on sugar, but not on starch; the power of acting on the latter increasing with the age of the foetus, until at the time of birth it differs but little from that of the adult organs.

Disinfection.—Numerous new disinfectants are continually being proposed, amongst others is Langston Jones's universal disinfecting powder, consisting of the chlorides of sodium and calcium and the sulphate of zinc. This is efficacious to a certain extent, but not very powerful; it has the advantage of being itself inodorous. Another substance is the powder of Lueder and Leidloff, consisting of sulphates of protoxide and peroxide of iron, free sulphuric acid and sulphate of lime. This is well spoken of, and appears to be efficacious to a considerable degree.

THE SPREAD OF DISEASE.

Contagious Pneumonia.—Mr. A. Winter Blyth (in his report to the Okehampton Sanitary Authority) calls attention to the apparently contagious nature of an epidemic of pneumonia, in which he sees evidence to support the view taken by Dr. Christian Budd. Similar views are also held by Dr. Grimshaw in his report of the Cork Street Fever Hospital, Dublin.†

Plague.—The plague has been again seen to appear in the East, and the interesting paper by Mr. Netten Radcliffe, read to the Epidemiological Society, has called attention to the possibility of its again visiting Europe. Even though it did do so it would probably be shorn of much of its terror, and would not be able to hold its own any more than typhus, which has been almost stamped out in places where not many years ago it was rife.

Cholera.—A translation of Pettenkofer's little treatise on the prevention of cholera has been published (with an introduction and appendix) by Mr. T. W. Hime, M.B. It gives a good *résumé* of the subject.

Another important work is the report by Pettenkofer of the Outbreak of Cholera among Convicts at the Prison of Laufen, in Bavaria, in which the evidence is certainly negative as to personal communication of disease. Dr. Tholozan has also published a treatise "Sur le Choléra." I must also mention the "History of the Cholera Epidemic of 1873 in the United States of America," published by the Government. Dr. Decaisne has also published a monograph, "La Théorie tellurique de la Dissémination du Choléra."

Enteric Fever.—Professor A. Vogt, of Bern, has published an important work, "Trinkwasser oder Bodengase," in which he investigates the causation of typhoid fever, and gives the chief place to Pettenkofer's views. He holds that the locality is the chief factor, and that the propagation by drinking-water is illusory. Of other works on the subject I may note:—Broel's, of Nabburg, "Ueber die Aetiologie des Typhus"; Russell's account of the Glasgow epidemic, apparently traceable to infected milk; Buchanan's report on the Croydon epi-

* "Comptes Rendus," 1875, vol. ii., 226.

† See "Medical Record," September 15th, 1875.

demic; Donnet's report on Typhoid in the Channel Fleet in 1870, apparently traceable to impure drinking-water taken in at Vigo and Lisbon; and many other papers.

Measles.—One of the most remarkable events of the year has been the extraordinary epidemic of measles in the Fiji Islands, in which at least 50,000 natives perished.

Scarlatina.—On this subject Dr. Tripe has written an interesting paper, in which he tries to show that the disease comes in regular waves, which can be, to a certain extent, foreseen. He seems to think that there is some cause of propagation at work which is likely to baffle any efforts at repression.

The remarkable outbreak of scarlatina among the family and guests at a house in South Kensington has been investigated by Dr. Buchanan. The evidence seemed to point to some article of food consumed by all, and most probably to the cream. Careful inquiry, however, failed to elicit anything like conclusive evidence.

Small-pox and Vaccination.—The usual amount of fanatical opposition to vaccination has taken place, and the most absurd statistics published; some with a view to show that vaccination enormously increases the susceptibility to small-pox! On this question an interesting pamphlet has been published by Dr. J. Summerfield Conrad, of Baltimore, giving the experiences of the epidemic of 1871-2-3. There were 1,246 patients, of whom 42 per cent. died. Only 250 had any satisfactory evidence of vaccination. Among the perfectly vaccinated only 2 per cent. died, while among the unvaccinated 53 per cent. died. There was not a single death in the whole number treated where the patient had a good mark from vaccination done after puberty.

Contagious Diseases Prevention Acts.—The agitation against these Acts has been active, but has failed to shake the confidence of the Government in their efficacy. Accumulating evidence shows the benefit derived from them, both to the Army and Navy, and to the civil population as well. As these points are fully entered upon in the Statistical Returns it is unnecessary to go more into detail here.

Propagation of Disease by Germs.—I cannot do more than refer to some of the works and papers on this subject; among these are:—Dr. Burdon Sanderson's lectures, "On the occurrence of Organic Forms in connection with Contagious and Infectious Diseases," delivered at Owen's College, Manchester. MM. Braidwood and Vacher's reports to the British Medical Association on the Life History of a Contagium. Dr. Birch-Hirschfeld, of Dresden, "On the Recent Pathologico-Anatomical Researches on the Occurrence and Significance of the Lower Fungus Forms (Bacteria) in Infectious Diseases"; Schmidt's Jahrb. Bd., 166, No. 2 (1875). Dr. H. E. Richter, of Dresden, contributes a similar paper to the No. 1 of 168 Bd. of the same journal. Both of these are very voluminous and exhaustive in their account of the literature of the subject.

DISPOSAL OF THE DEAD.

Much interest has been excited by the proposals for cremation, which found advocates in Sir Charles Dilke, Sir H. Thompson, and other distinguished persons. Mr. Seymour Haden, on the other hand, enlisted much sympathy for his suggestion of perishable coffins, which would favour the rapid decay of the body, in the belief that the soil would quickly dispose of the organic products. This last point is not certain; it will, however, be long before prejudice will be so far overcome as to admit cremation as a general practice, in spite of its undoubted advantages.

APPENDIX No. II.

REPORT ON THE PREVALENCE OF AGUE AND MALARIA AT
TILBURY FORT, IN CONNECTION WITH THE SOURCE OF
WATER SUPPLY.

By Surgeon-Major J. G. FAUGHT.

TILBURY FORT, on the bank of the Thames in the Essex Marshes, is supplied with rain water, which is collected on the roofs of the various buildings in the Fort, and before entering two underground tanks of cement, passes through a rough filter of charcoal and gravel. Both tanks communicate, but have two separate filters, the water passing upwards through these filters; and each tank has a separate collecting ground.

The tanks at Tilbury Fort are: the old tank, containing 24,000 gallons, is 280 ft.; and the new tank, containing 22,437 gallons, is 390 ft. distant from high-water mark.

These filters were built in 1873, previous to which date there was no means of purifying the tank water.

The tanks requiring cleaning and repair, spring water was obtained for the use of the troops from the Tilbury Railway Station, from 13th December 1873 to 16th October 1874, for drinking and cooking purposes.

The tanks in the Fort having been repaired, and a sufficient quantity of rain water collected in them, an opinion was called for as to the quality of the water so collected; and calling to my aid the Public Analyst of Gravesend, he furnished a report, which was sent to the Deputy Surgeon-General, Chatham.

This report was unfavourable, and the water so analyzed was stated to be very impure.

The tank water, however, was brought into use again on the 17th October last, and the spring water was discontinued.

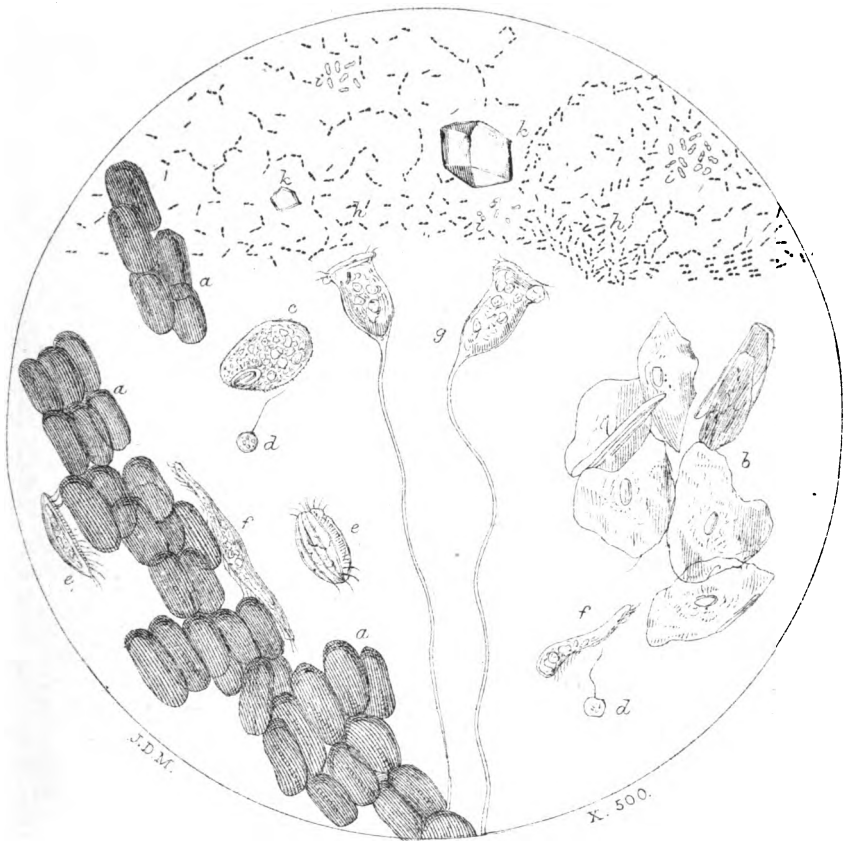
I can in no very satisfactory way account for this tank water on analysis being found so impure, but by supposing that underground tanks in marsh land become damp, and the river mud so penetrating, that lowly organized forms of animal and vegetable life are generated, which form the basis of the organic matter which on analysis was discovered in sufficient quantity to condemn the water.

The railway water is spring water, and is pumped up from an ordinary well at Low Street, a station on the Tilbury and Southend Railway. In a straight line from the Thames it is about $1\frac{1}{2}$ miles inland, and at the foot of some low lying hills.

It is about $1\frac{1}{2}$ miles from Tilbury Station, and must be very pure, as I am informed that steam-engines get out of order if very pure water is not used.

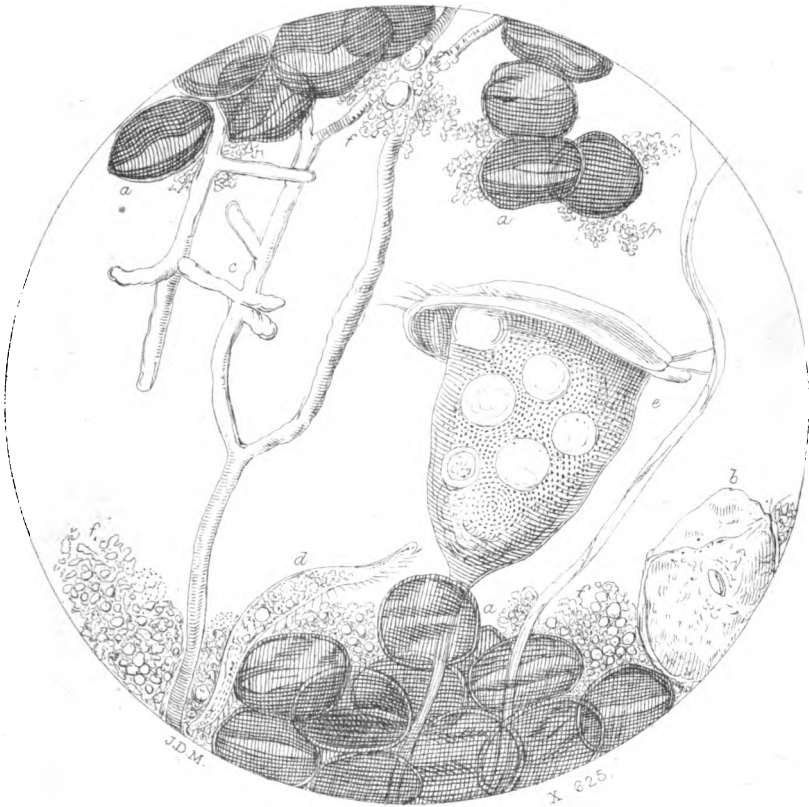
Not many years ago, it was intended to lay on pipes from this source to Tilbury Fort, but it was for some reason or the other abandoned. I have placed myself in communication with the engineer to these waterworks, but have not as yet been furnished with his report.

Not only do the railway *employés* drink this water, but a small body of Coastguard men, stationed in a vessel which lies on the mud bank of the Thames just outside Tilbury Fort fortifications, are also supplied with spring water from the railway station, and a vessel is no barrier to ague and malaria.



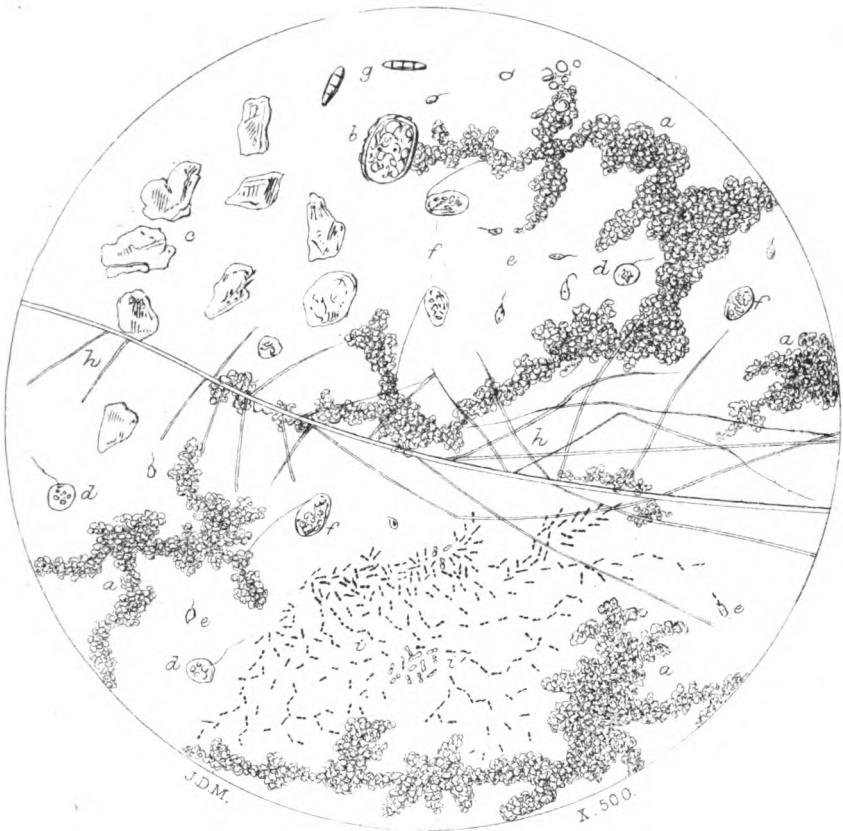
References.

- a. a. a. Brown Vegetable cells. (probably Sporangial.) probably disengaged gonidia
 b. Scales of Epihelium. of Ichens (Leighton).
 c. Glaucoma scintillans.
 d. Monas lens.
 e. e. Aspidisca denticulata, or Coccudina.
 f. f. Oxytricha gibba. f' young.
 g. Vorticella Convallaria.
 h. Bacterium termo in a broad sheet.
 i. Localized groups of a larger form.



References.

- a. a.* Brown vegetable cells as represented in N° 1.
b. Epithelial Scale
c. Mycelium of a Fungus
d. *Oxytricha gilda*.
e. *Vorticella cravillaria*
f. f. f. Amorphous matter containing the spores of fungi
g. *Excimerium puncta* of minute size in gelatinous fibres.



References.

- a.a.a. *Amorphous granular matter.*
- b. *Shell of a Diffugia of small size*
- c. *Epithelial particles?*
- d.d.d. *Monas lens*
- e.e.e. *Monads of smaller size*
- f.f.f. *Pleuromonas jaculans*
- g. *Sporangia of fungus*
- h.h. *Minute colourless Oscillatorians attached to a filament.*
- i. *Bacterium termo, i' patch of larger form, as in Nº 1*

I will now proceed to state a few facts concerning the health of the troops at Tilbury Fort. This fort has been found so unhealthy, that of late years the troops have been relieved every six months.

The 7th Battery, 17th Brigade, under the command of Major Chichester, arrived at Tilbury Fort on the 18th December 1873, and were relieved on the 10th July 1874. During the whole of this time, the tanks being under repair, the men were supplied with spring water for drinking and cooking purposes from the railway station. The average strength of the Battery was 90 during this period. The admissions into hospital for ague from this Battery during the whole time it was quartered at Tilbury Fort—nearly seven months—was one, and this case was only in hospital five days. This admission occurred on the 1st January 1874, not many days after the arrival of the Battery.

During the first six months of 1873 another Battery—average strength, 102—of the same Brigade being quartered at this fort, the admissions for ague were 12: and for the same six months in 1872, the admissions for ague in the Battery—average strength, 103—then stationed at Tilbury Fort, were 34. During these periods tank water was used for purposes of diet.

The half-Battery 4 | 15th Brigade, occupy the fort at present. It has recently returned from Gibraltar, and has occupied the fort since the 1st November 1874, strength 53. There have been four admissions from ague in men who never had ague before, and two of these men had to be sent on furlough, being much debilitated by malaria. During this period tank water was also used for purposes of diet.

There are no villages in the neighbourhood of this fort to draw comparisons from, but there are the railway *employés* at Tilbury Station, and the men of the Coastguard, living under not very different circumstances as regards locality.

The Coastguards occupy a ship lying in the river mud just outside Tilbury fortifications. There are 10 men, 7 women, and 20 children. The Warrant Officer informed me they never suffer from malaria, and a case of ague is hardly known amongst them. The men have all been stationed there from over one to five years, and are very hale looking men.

There are some 60 men, besides women and children, belonging to Tilbury Station, and occupying houses close by. The men have been there for various periods up to five years. The Station-Master informs me that ague is very uncommon, and malaria not known amongst his men.

It is a curious fact that neither the Railway or the Coastguard men suffer from ague or malaria as the men at Tilbury Fort suffer, and that when you put a Battery stationed at Tilbury Fort under the same conditions as regards their water supply as the Railway and Coastguard men are placed in, their health will at once compare favourably with the health of these men.

Report on Samples of Drinking Water from the Gravesend District.—Received March 1875.

No. 1 Sample.

Labelled "Spring Water from the Railway Station Well at Low Street, "2 miles from Tilbury Station, and about $1\frac{1}{2}$ miles in a direct line from the "Thames." (Signed) J. G. FAUGHT, Surgeon-Major, Gravesend, February 18th, 1875.

Physical Examination.—Slight yellow colour through a depth of 14 inches, no smell, taste pleasant, some sediment.

Microscopic Examination.—Numerous organisms visible, *see* drawing appended.

<i>Hardness.</i> —Total	....	....	....	25° 55	(Clark's Scale).
Fixed	....	....	....	9° 45	"
Removable	....	....	....	16° 10	"

Quantitative Analysis.—

						Grains per gallon.
Volatile matter .. .. .	..	..	..	..	..	7·000
						milligrammes
						per litre.
{ Oxygen required for organic matter ..	..	..	..	..	..	0·4201
{ Free ammonia .. .. .	..	..	..	..	..	0·1584
{ Albuminoid ammonia .. .. .	..	..	..	..	..	1·2116
{ Nitrous acid .. .. .	..	..	..	..	..	0·2350
{ Nitric acid .. .. .	..	..	..	..	..	45·4140
Chlorine .. .. .	..	..	..	..	..	3·330
Sodium combined with chlorine .. .. .	..	..	..	..	..	2·157
Calcium carbonate .. .. .	..	..	..	..	..	10·740
Fixed salts of calcium and magnesium .. .. .	..	..	..	..	..	9·450
Other substances (sulphate and carbonate of sodium, &c.)	..	..	..	..	..	5·473
Total solids						38·150

The substances in excess are: Fixed hardness (largely), volatile matter, free ammonia, albuminoid ammonia (largely), nitrous acid (slightly), nitric acid (very largely); total solids. Oxygen for organic matter low.

No. 2 Sample.

Labelled "Rain water, collected in underground tanks. It passed through "a rough filter before entering the tanks." (Signed) J. G. Faught, Surgeon-Major, Gravesend, February 18th, 1875.

Physical Examination.—A strong yellow tinge, some sediment, smell mouldy, taste earthy and mouldy.

Microscopic Examination.—Numerous organisms, *see* drawing.

Hardness.—Total 10° 50 (Clark's Scale).

Fixed 5° 95 "

Removable 4° 55 "

Quantitative Analysis.—

						Grains per gallon.
Volatile matter .. .. .	..	..	..	..	..	6·300
						Milligrammes
						per litre.
{ Oxygen required for organic matter ..	..	..	..	..	..	1·3400
{ Free ammonia .. .. .	..	..	..	..	..	0·0918
{ Albuminoid ammonia .. .. .	..	..	..	..	..	1·0667
{ Nitrous acid .. .. .	..	..	..	..	..	2·1850
{ Nitric acid .. .. .	..	..	..	..	..	18·0000
Chlorine .. .. .	..	..	..	..	..	12·872
Sodium (combined with chlorine) .. .. .	..	..	..	..	..	8·339
Calcium carbonate .. .. .	..	..	..	..	..	3·040
Fixed salts of lime and magnesia .. .. .	..	..	..	..	..	5·950
Other substances (sulphate and carbonate of sodium, &c.)	..	..	..	..	..	4·799
Total solids						41·300

The substances in excess are: Fixed hardness, volatile matter, oxygen required for organic matter, free ammonia, albuminoid ammonia (largely), nitrous acid, nitric acid (largely), chlorine (largely); total solids.

No. 3 Sample.

Labelled "Rain water from a tank in Tilbury Fort, recently analyzed at "Gravesend, and was used by the troops for drinking purposes lately. The "pump being out of order, the other tank was brought into use." (Signed) J. G. Faught, Surgeon-Major, Gravesend, February 22nd, 1875.

Physical Examination.—Colour markedly yellow, not much smell, taste earthy and slightly brackish, sediment rather marked.

Microscopic Examination. See Drawing.

<i>Hardness.</i> —Total	....	....	19° 25	(Clark's Scale).
Fixed	....	....	15° 05	„
Removable	....	....	4° 20	„

Quantitative Analysis.—

Volatile matter	..	..	..	..	..	Grains per gallon.
						14·000
					Milligrammes	
					per litre.	
{ Ox	required for organic matter	..	..	..	1·4200	}
{ Fre	ammonia	..	..	..	0·0700	
{ Albuminoid	ammonia	..	..	..	1·0777	
{ Nitrous acid	..	..	..	..	1·4950	
{ Nitric acid	..	..	..	..	12·6222	
Chlorine..	..	..	..	..	..	33·945
Sodium (combined with chlorine)	..	..	..	..	..	21·993
Calcium carbonate	..	..	..	..	..	2·800
Fixed salts of calcium and magnesium	..	..	..	..	..	15·050
Other substances (including sulphates and carbonates of	..	..	..	..	..	57·462
sodium and potassium, &c., &c.	..	..	..	..	..
Total solids	..	..	..	..	..	145·250

The substances in excess are : Fixed hardness (very largely), volatile matter (very largely), oxygen required for organic matter, free ammonia, albuminoid ammonia (largely), nitrous acid, nitric acid (largely), chlorine (very largely), other substances (very largely), total solids (very largely).

Remarks.

All the three waters have the albuminoid ammonia much in excess, but in Nos. 2 and 3 (the tank waters), the oxygen required for organic matter is in excess, whereas in No. 1 (the railway station water) it is in small quantity. The amount of nitric acid is largest in No. 1, shewing that oxidation of organic matter had been most active there. It is quite clear that in Nos. 2 and 3 water had penetrated in large quantities from the surrounding ground into the tanks, and that the name of rain water applied to them was absurd. As I understand that the fever practically ceased when the use of No. 1 water was resorted to, we may gather from the analysis that the probable poison in Nos. 2 and 3 was an *oxidisable organic substance*, but not necessarily a nitrogenous one, seeing that the albuminoid ammonia was really in greatest excess in No. 1, apparently the least harmful water. The free ammonia was also in excess in No. 1, but this is probably one of the steps in oxidation, and therefore accords with the other characters. If we may draw any conclusions at all upon such a difficult and doubtful subject, they will be the following :—

1. That some poison existed in Nos. 2 and 3 that was absent in No. 1.
2. That the poison was probably of an organic nature, and that it was oxidisable.
3. That freest oxidation existed in the least harmful water.
4. That if the same poison had at any time existed in No. 1 water, it was rendered innocuous by oxidation.
5. That as the chemical analysis proves soakage of water from the surrounding marsh into tanks Nos. 2 and 3, the poison was in all probability derived from the marsh.

Microscopic Examination.

This was undertaken by Dr. J. D. Macdonald, R.N., F.R.S., whose drawings accompany this report.

The following is a list of the objects seen, and their distribution in the three samples :—

List of Microscopic objects noted.

Objects.	No. 1.	No. 2.	No. 3.
1. Brown vegetable cells	Yes.	Yes.	—
2. Scales of epithelium	Yes.	Yes.	Yes.
3. Glaucoma scintillans	Yes.	—	—
4. Monas lens (and smaller ones)	Yes.	—	Yes.
5. Aspidisca denticulata	Yes.	—	—
6. Oxytricha gibba and young	Yes.	Yes.	—
7. Vorticella convallaria	Yes.	Yes.	—
8. Bacterium Termo (in a broad sheet) ..	Yes.	absent at first, but appeared in a few days.	{ Yes. Yes.
9. Localized groups of a larger form of Bacterium	Yes.		
10. Crystalline particles	Yes.	—	—
11. Mycelium of a fungus	—	Yes.	—
12. Amorphous matter, containing the spores of fungi and bacteriform puncta ..	}	Yes.	—
13. Amorphous granular matter			
14. Shell of Diffugia	—	—	Yes.
15. Pleuromonas jaculans	—	—	Yes.
16. Sporangia of fungus	—	—	Yes.
17. Minute colourless oscillatorians attached to a filament	}	—	Yes.

It will be observed that the objects present in Nos. 2 and 3, and not in No. 1, are those numbered from 11 to 17 inclusive. Without laying too much stress upon the fact, it may be noted that the only *fungoid* elements observed were quite absent from No. 1.

Laboratory, A.M.S.,
July 27th, 1875.

F. DE CHAUMONT, M.D., Surgeon-Major,
Conjoint Professor of Hygiene.

APPENDIX No. III.

SPECIAL REPORT ON PUCHMURREE, ITS CLIMATE AND MEDICAL TOPOGRAPHY.

By Surgeon-Major F. P. STAPLES.

THIS new, or rather trial station, is situated in the central provinces on Geographical the "Satpoora" range of mountains in latitude 22° 25' N., in longitude 78° 25' E., position. about 100 miles due south from Saugor, and 31½ miles from "Bunkerry," a small station on the Great Indian Peninsula Railway between Nursingpore and Hoshungabad.

It is approached, independently of the bridle-paths in use with the Means of aboriginal tribes and "Bunjarra" carriers, by three roads, two of them being approach. from the line of rail at Bunkerry and Sohagpore, and the other from the country south of the range* on which the station stands.

The first is that now in general use with visitors, traders, and the troops from the Saugor district, and is the easiest way of reaching the station, being only 31½ miles long, while that from Sohagpore, also on the line of rail, is about 42 miles.

The latter, for this reason, is seldom used by the first two classes of travellers but it may be mentioned that it is the route used by the troops from the Nagpore Command.

These two means of approach from the line of rail unite at Singahnamah, "the foot of the hill," where there is a dāk bungalow, but neither deserve the name of road, as they are merely the unbridged cartways from one "Gond" village to another, and, except in the dry seasons, are impracticable except for foot passengers, elephants, or very lightly-laden buffaloes.

From Singahnamah to the station, a new road was made in the latter part of 1871, and it appears to answer every purpose required of it, being broad, dry, and well drained, and having a gradient which easily permits of cart traffic.

The third way of approaching Puchmurree, or that from the south, leads, *via* Chindwarra, a small civil station on the southern slope of these hills, but as it is little better than a bridle-path over some very steep ghauts, it may be considered impassable for troops carrying with them ordinary marching equipment. It is much used, however, by sportsmen, pilgrims to the shrine of Mahadeo in these hills, and by the "Bunjarras."[†]

This has been a place of importance for centuries with the Hindoos, who had no sooner established their religious supremacy in this part of India, than they consecrated one of its highest hills to their god Mahadeo, and a journey to the shrine of the deity near here is a binding observance upon the members of that religion in these provinces. The importance of the place, however, was entirely due to these pilgrim gatherings, as the Hindoos made no attempt

* The Satpoora range to which reference is made has a direction parallel to the 22° of north latitude, and may be said to separate the country of South India, or "Deccan," from Hindoostan proper. It furnishes the watershed of the following rivers: The Soane, Mahanuddi, Godavery, Nerbudda, and the Tapti.

† These are a class of men who own large herds of bullocks, on which they transport, by the bridle-paths of the country, grain and other merchandise. They live almost entirely in the jungles.

to colonise the hill, and the name of Puchmurree up to the permanent settlement of Europeans here, continued to represent two very dirty villages inhabited by about 200 semi-savage aborigines.*

The shrine to which the devotees repaired is situated about three miles from the station, in a natural cave of sandstone; but their great annual gathering, which is so vividly described by the author of the "Highlands of Central India,"† is now represented by a few small parties from time to time, and this change is due to the action taken by the Central Provinces Government in 1865, who found it necessary to prevent the spread of cholera which broke out amongst the pilgrims to prohibit their subsequent assemblage in large numbers.

A British force marched into these hills in pursuit of the Rajah of Nagpoor, about 1818, or towards the close of our war with the Mahrattas, and traces of the huts they erected are yet to be seen here, but from that date till 1862, I have been unable to find mention of Puchmurree in Indo-British history.

In that year the station was visited by the distinguished writer I have quoted above, and who may be said to have initiated the settlement by building a house, and the name he gave the latter, "Bison Lodge," is yet a very familiar word with the local community. During the succeeding five or six years the Officers of the Forest Department carried on extensive experiments in horticulture, and in the growth of tea and cinchona, but, owing to the poor quality of the soil, their efforts were attended with unsucccess, and the scheme of utilising the place in this way was abandoned.

Early in 1870, the Central Provinces Government determined to test the capabilities of its climate, and sent here for that purpose 100 prisoners from the jail at Hoshungabad, and, in the autumn of that year, a committee was ordered by the Government of India to report further on its suitability as a sanitarium for the British troops quartered in the Central Provinces.

The practical result of the Committee's report was the occupation of the plateau in 1871 by 100 men of the 1st Battalion of Her Majesty's 19th Regiment, from Saugor, and a similar number of the 79th Highlanders, from Kamptee, and they have been succeeded in the present year by 150 men of the 44th Regiment, from the latter station.

General
description of
the station.

The plateau of Puchmurree, on which the station is built, is the third of a similar configuration on the crest of the range, lying between the rocks which overhang the bend of the Denwah river at "Jhilia" and Dhup Gurgh. It is about 4 miles long, by $1\frac{1}{2}$ broad, with a direction from west to east, speaking in general terms, and is beautifully undulating; its slopes are covered with grass, which remains green throughout a great portion of the year, while a liberal clothing of umbrageous trees gives it in many places, and particularly where it has been reasonably cleared, the appearance of English scenery.

It is bounded on the north by a series of rocky peaks, which have a general elevation of 600 or 700 feet above it, and by a huge ravine, called "Jumbo Dhip," on the south by the Andeh Kôh ravine and by the peaks known as Mahadeo and "Choura Gurgh," on the west by "Dhup Gurgh,"‡ while the eastern boundary is formed by a series of scarped cliffs which rise up perpendicularly from the "Bungungah" valley.

When viewed from any of the knolls which surround it, the plateau will be observed to resemble somewhat the shape of an oval basin, but, more accurately speaking, it consists of two curvilinear valleys, uniting at their extremities and separated by a centrally elevated ridge, while the outer margin of the basin is formed by another chain of low hills. Through the centre of each valley runs a small stream, which receives the drainage of the low boundary hills by a series of converging valleys, as well as that from the corresponding side of the central range, and the southern or largest of these watercourses is known by the name of the "Bungungah." It is joined by the northern stream at a point

* I have availed myself largely, in the non-professional part of this report, of the accurate knowledge of these hills to be found in Captain Forsyth's work on the highlands of Central India.

† Gonds and Korkus.

‡ This is the highest mountain in this range, and also in Central India, having an elevation of 4,500 feet above the sea.

near the present site of the Sudder Bazaar, and during the remainder of its course until it leaves the hill at the "Little Waterfalls," forms a boundary line between Puchmurree proper and that portion of ground which is called the "Gate Plateau."

At no part of its course within our limits does it deserve the name of river, although it carries a large volume of water during the Monsoon season; but after its descent into the valley of the same name it assumes much greater dimensions, and forms the largest tributary of the Denwah.

The western union of the two valleys above described as forming the Puchmurree basin has received the name of "West-end," from its picturesque beauty, and it certainly affords to the visitor from the plains, if not the grandest, at least one of the most delightful pieces of scenery by which his walks can always be rewarded in these hills.

At the eastern extremity of the central ridge, and within the corresponding junction of the two valleys so often alluded to, on an undulating piece of ground, stands the civil station of Puchmurree, the first house of which was built in 1862 by the late Captain Forsyth, of the Forest Department.

The few remaining houses and huts are of much more recent construction, and the whole scarcely deserves the name of station, and is merely called "civil" here to distinguish it from the military cantonment.

The site of the latter stands about 1,000 yards east of the civil station, and is separated from it by the "Bungungah" and the valley through which it runs. It is an undulating ridge, and forms the outer boundary of the plateau deep ravines leading from it towards the scarps which overhang the valley of this river.

In addition to the barracks, which are four in number, this site also contains a guard-room on the western front, and these buildings, with the Sudder bazaar, Commissariat store-yard, the Engineer store-yard, and some huts belonging to the D. P. W. employés, situated across the Nullah on a slope of what I have called the "Gate Plateau," constitute the Puchmurree of to-day, the name being originally applied to the Kôrkû villages before alluded to, and both of which have now disappeared from the hill.

The group of hills known by the name of this station, or, as they are more commonly called the Mahadoes, from the religious importance of the hill of that name, constitutes that portion of the "Satpooras" which furnishes the watershed of the Denwah and Sonbudra tributaries of the Nerbudda. Such a statement, of course, is not meant to be strictly accurate, as the former river during the first part of its course receives also the drainage of the north-western slopes of the "Mohtur" range, while the northern slopes of the hills which furnish the upper waters of the "Tapti" are drained by the Sonbudra.

Physical
geography of
the district
and station.

The hills, however, which more immediately surround Puchmurree are bounded, or rather encircled, by the Denwah river, the course of which furnishes a curious example of the system—or rather want of system—in the formative arrangement of these mountains. Rising from beneath "Dhupgurgah," at no great distance from the Nerbudda, which lies in a direction due north, it takes an opposite course as far as the foot of the Mohtur range, between which and the Mahadeos it courses eastward, through the Delakhari Sâl Forest, where it suddenly bends northwards, and having passed through a remarkably narrow defile in the chain, flows along its northern face to its parent stream.

The geological formation of the "Puchmurrees" is what is known as Mahadeo grit, a stratified sandstone, composed for the most part of pure quartz crystals, with an occasional horizontal layer of pebbles intervening, while, projecting from the more consolidated portions of rock, is to be found a curious ferruginous formation. I am not aware of the exact chemical constitution of this structure—probably it is what is called "iron earth"; but the fantastic shapes which it presents, forms a not incurious object of interest to the visitor to these hills; lime is also found, but very sparingly, in the form of a crystalline carbonate; but whether as a "calcite," or whether originally existing as a cement in the sandstone and derived from it through the agency of water charged with carbonic acid, is a question for the geologist.

The general elevation of the Puchmurree plateau and of the higher plateaux in the range is about 3,500 feet, although many of the peaks which

surround it—such as Dhupgurgul, Mahadeo, Chouragurgul, and those peaks which skirt the “Jumbo Dhip” ravine, attain a much greater altitude—viz., from 4,000 to 4,500 feet.

This great sandstone block of the Mahadeo hills is generally described as the only break in the great trappean overflow which constitutes the remainder of the Satpooora range, as well as the level plains of the “Deccan” and Central India; but perhaps it would be more correct to say that it furnishes an isolated spot of the original crust which escaped the overflow, and which now exists as an upheaval lying upon the igneous formation. I have seen no ravine deep enough to determine at what precise elevation this meeting of the two formations takes place, but it seems reasonable to put it down as 1,000 feet above the sea level, which is about the general elevation of the black trappean plains at the foot of these hills.

In some places, however, within the latter, the basaltic formation is to be found much higher, where water has denuded it of its outer stratified covering, amongst which I may mention a place in the bed of the Bungunah river, near “Congee Ghaut,” at an elevation of 1,716 feet, and again, in the bed of the Denwah river, at “Jhilia,” at an altitude of 1,570 feet above the sea level; but, at these places, it will be observed that the igneous formation has merely boiled up into the faults or veins of the sandstone.

The soil consists of the formation disintegrated, and is the result apparently of what the rainfall has removed from the higher hills into the basin. It is light and porous, and lies immediately on the sandstone rock, at depths varying from a few inches, on the convexities of the plateau, to 6 or 8 feet, in the corresponding depressions. It contains scarcely any alluvium, except at the outlets of the valleys which converge towards the two watercourses, and where it has apparently accumulated from the combined action of surface washing and the *débris* of decayed vegetation.

The advantages and disadvantages of the soil as a site for habitations will be discussed further on, but it may be pointed out here that a soil which absorbs water so readily as does the soil of this station, absorbs as readily the refuse of our domestic lives, and that the liability to contamination from such a source should never be lost sight of.

There are no perennial marshes, although there is one on the “Gate Plateau”; but during the Monsoon season, a great part of the two valleys which constitute the Puchmurree basin, as well as the smaller valleys which drain the surrounding ridges, assume a marshy condition. I am particularly anxious to invite attention to this point, as the visitor to the plateau during the dry season can scarcely understand that ground over which he can then gallop is in reality a marsh, and because I have long been of opinion that is to this water-logged condition of the soil that the malarial diseases so prevalent here are due, and more especially because the condition appears to admit of easy remedy by drainage. In the valleys which surround the hills and in the great ravines which carry off its drainage, there are also extensive marshes, and it is in these during the hot weather, when grass is not to be found elsewhere that the sportsman may expect to meet with the noble “gaur,” or Indian bison.*

The vegetation, with the exception of the coarse grass to be found near the streams and wet valleys, consists of a fine kind of spear grass, which is eagerly consumed by horses and black cattle. A great variety of trees are to be met with, and many of them are peculiar to the Central Provinces, and to those parts of India having a similar latitude, the most common being the “Hurra” (*Terminalia Chebula*), the “Mowah” (*Bassia Latifolia*), the “Jamin” (*Eugenia Jambolana*), the “Aonla” (*Embolia officinalis*), the “Sâl” (*Shorea robusta*), and the “Bejazzal” (*Pterocarpus marsupium*), while a fair sprinkling of the dwarf date serves to remind the European that the scene of all this beauty is yet within the tropics. Specimens of the following trees are also to be found, but in sparing numbers:—

“Saj” (*Penetaptera tomentosa*), a useful wood, but hard.

“Beherah” (*Penetaptera bellerica*).

“Siris” (*Acacia sirrissa*).

“Tendoo” (*Diospyros ebenum*), the ebony tree

* *Gaurus Gaurus*.

- "Salee" (*Boswellia thurifera*), frankincense tree.
- "Gooloo" (*Sterculia urens*), furnishes gum tragacanth.
- "Dhak" (*Butea frondosa*), furnishes one kind of gum kino.
- "Bher" (*Zizyphus jujuba*), the jujube tree.
- "Mango" (*Mangifera indica*), the wild kind.
- "Semul" (*Bombax malabricum*), red cotton tree.
- "Imlee" (*Tamarindus indica*), tamarind tree.
- "Toon" (*Cedrela toona*), a useful wood.
- "Bael" (*Ægle marmelos*), very few specimens.
- "Dowrah" (*Conocarpus latifolia*), lance wood.
- "Unjun" (*Hardwickia binata*), a useful wood.
- "Cheroonjee" (*Buchanania latifolia*), has a pleasant fruit.
- "Peepul" (*Ficus uligiosa*).
- "Banyan" (*Ficus indica*).
- "Goolar" (*Ficus glomerata*). The figs of this tree are largely eaten by the natives.
- "Kuchnar" (*Bauhinia variegata*), has beautiful lilac flowers.
- "Mahwal" (*Bauhinia scandens*), the giant creeper.

Ferns in great variety are also to be found, and fern gathering on the hill sides and at the waterfalls* forms one of the attractions of the annual visitors. The most common kinds are the "Rajah" fern, a variety of the maiden hair, the creeping fern, a species of *Asplenium* the "oak leaf," two or three kinds of *Scolopendrium*, several varieties of parsley fern, a specimen resembling the English *Botrichium*, and the climbing fern; while, in the ravines which bound the plateau, tree ferns of three varieties, as well as the royal or flowering fern (*Osmunda regalis*) are to be seen in great abundance.

The sandstone rock, when quarried and exposed to the air for some time, is an admirable building stone, and the "Sâl" tree of the ravines and lower slopes, furnishes timber large enough for rafters, door-posts, and minor carpentary work. A valuable dye is procured from the fruit of the "Hurra" tree, which is collected twice yearly, while the "Mowah" yields the ardent spirit of the country, as well as a rich oil. Natural productions.

Several kinds of gum can be procured from the other trees—such as olibanum, from the *Boswellia*; kino, from the *Bejzal* (*Pterocarpus*); but the natives, although well aware of this fact and of the medicinal properties of the specimens, are too lazy to develope their commercial value.

No grain of any kind was grown on the plateau by the aborigines; but on many of the hill sides are to be found "Dhya" clearings where they raise crops of Kôdon and Kûtki (kinds of millet) by this destructive process of cultivation.† Potatoes have been grown by the Commissariat Agent, and, although they failed utterly in 1871, owing to want of manure, drainage, and the excessive rainfall, they promise to yield a middling crop this year. (Since this part of the report was written the crop has been gathered, and the out-turn of edible potatoes is about thirteen-fold.)

The plateau is singularly wanting in natural historical specimens, and Natural nothing, perhaps, strikes one so much on a first visit to Puchmuree as this history. singular absence of animal life.

In the ravines, however, and valleys which bound the hill, although in sparing numbers, are to be found most of the specimens of wild animals for which the Central Provinces are remarkable, and the following is a list of those I have met with in my jungle expeditions:—

- "Gaur" (*Gaveus Gaurus*), the Indian bison.
- "Tiger" (*Felis Tigris*), has been known to visit the plateau.
- "Leopard" (*Felis Leopardus*), they sometimes live near Puchmuree.

* The drainage water as it leaves the hill forms three magnificent waterfalls, called respectfully the "Big," "Little," and "Bee." The first is about 600 feet in height, the second a double fall of about 50 and 100, and the third, which is a remarkably picturesque one, is about 100 feet in height.

† The process in question consists in cutting down the trees on a piece of forest, burning them and sowing grain in the ashes.

- "Wild Cat" (*Felis Catus ferus*), a constant visitor in the cold weather.
- "Wild Dog" (*Cuon rutilans*).
- "Marten" (*Mustela foina*).
- "Indian fox" (*Vulpes Bengalensis*).
- "Common Indian squirrel" (*Sciurus palmatus*).
- "Sambar" (*Rusa Aristotelis*), the Indian red deer.
- "Great Indian red squirrel" (*Sciurus maximus*).
- "Common hare" (*Lepus timidus*).
- "Chickara" (*Gazella Bennettii*), the Indian gazelle.
- "Nilghi" (*Portax Pictus*).
- "Bher" (*Tetracerus Quadri cornis*), four-horned antelop, or jungle sheep.
- "Barking deer" (*Cervulus aureus*).
- "Indian sloth bear" (*Ursus labiatus*), visits the plateau during the flowering of the Mowah tree.
- "Wild hog" (*Sus Scrofa*).

I have also met with most of the specimens of Indian birds and reptiles here, and some of the visitors to the hill have made beautiful collections of beetles and butterflies; but I regret that space prevents my further alluding to this part of the subject.

Climate and
meteorological
observations.

The climate may be described generally as temperate, and forms a favourable contrast at all seasons of the year with that of the adjoining stations in the plains; but at no time is the comparison so agreeable as during the months which constitute the hot weather. At this time of the year, when everything is scorched up in the plains, and animal life supported with difficulty, and the lives of Europeans probably by artificial means, a comparative freedom from the exhaustion, sleeplessness, and the many disagreeable attendants on a tropical residence may be found in Puchmuree. The word comparative is used here advisedly to prevent people expecting too much, as some of the visitors during the past season, in their disappointment with the heat here, compared the place unfavourably with the Himalayan Sanatoria, apparently forgetting that the altitude here is only 3,500 feet, and that at the same height in the former range it is usual to experience an unpleasantly-heated temperature.

The hot season lasts from about the middle of April till the insetting of the rains, but even during this period the mornings and evenings are enjoyable, and the nights are seldom too hot to interfere with refreshing sleep. During the middle of the day, however, or from about 11 A.M. till 4 P.M., a heated westerly wind blows across the plateau, rendering artificial means of reducing the temperature a pleasant indulgence, if not a necessity; and, although no such luxury has been used for the past two years by the "pioneers" of Puchmuree, it was the opinion of the residents experienced in Indian climates, that "Khus Khus" tatties would have added much to their enjoyment of the climate during the summer months.

Punkahs are not necessary for people in health, but I have considered it advisable to recommend their employment for the sick in hospital for the hot weather, and, doubtless, ladies and people in delicate health will also require them during this season, particularly at night.

The rainy season, as in the adjoining plains, lasts from about the 10th of June till the 25th of September, and the average fall for the seasons of 1871 and 1872 has been 91.48 inches, and this—although, perhaps, a little too high—may, I think, be taken as an approximately fair average for the station. The fall for 1871—viz., 106.61 inches, is, no doubt, above the average, as that year was exceptionally wet throughout India generally, but I believe that the amount collected this season—76.35 inches, is equally below it, as the register only marked 4.75 inches for June, and 13.32 for September, neither of which figures appear to me to represent a fair average for those months.

During the wet season of 1871 the weather was most disagreeable, and the rain was almost continuous, and not unfrequently accompanied by a high wind. Except for two very short breaks, out-door exercise was next to an impossibility, and the gloom consequent upon confinement to their barracks, and the constant rain and mist, had a perceptible effect upon the spirits of the men, and

both they and their officers were often in the habit of expressing their dislike to the place.

The reverse of all this unpleasantness has been characteristic of the rainy season of 1872. There have been only 75 days on which it rained against 94* for last year; and as it very frequently rained only at night, and out-door exercise was obtainable, except on some half-dozen days, it would be almost impossible to experience a more enjoyable Monsoon season. The temperature felt like that of wet summer weather in Great Britain, while the clothing worn at home was in use by the troops, and fires in the barracks and private houses were enjoyable.

In the month of October the weather becomes again warm; but, although a high temperature obtains, it is only for a few hours during the day, and the remainder of the 24 hours is genial and refreshing, and, as far as I am personally concerned, I look upon this month at Puchmuree as a near approach to climatic perfection.

Towards the latter part of it, the nights begin to get very cold, and with November commences the cold weather. This season, in Central India, is very different to the same time of the year in the north-west provinces and Punjab, and approaches more nearly to the cold weather of the Bombay Presidency. The temperature during the daytime is always high, while that of the nights is very cold, and to this extreme diurnal range, which I have observed here as high as 54° Fahr., are superadded an excessive evaporation† and a very dry wind.

The limited number of residents, "9 adults and 3 children" during these months last year did not enable me to get valuable data as to the effects of these conditions upon the European constitution, but nevertheless I am of opinion that they will be very liable to produce fevers and congestive and inflammatory diseases of the viscera in the incautious soldier and the poorly-clad native of the plains. As observed, sufficient experience was not gained to attach any great importance to the statement, but it is only right to place on record that, out of the 12 who remained here during the winter, 10 had fever, and 2 had dysentery, and that the natives suffered and died in considerable numbers from these diseases.

The following Table will shew the prominent characteristics of the climate, of which a brief summary is here offered:—

- (1.) An average temperature of 10·2° Fahr. below that of the plains.
- (2.) Equable barometric observations.
- (3.) A comparatively high daily temperature; but this, it is to be observed, only lasts for a few hours in the middle of the day.
- (4.) A high diurnal range, except in the Monsoon season.
- (5.) An approximate yearly temperature of 73·4° Fahr. which almost brings the climate within the temperate classification.
- (6.) A very dry atmosphere, except in the Monsoon season, as shewn by the difference of the wet and dry bulb thermometers.
- (7.) An atmosphere almost saturated in the Monsoon season.
- (8.) A high rainfall.

* These numbers have reference only to the days on which rain fell during the monsoon, and do not include days on which there have been slight showers at other seasons of the year.

† My experience of this part of India does not enable me to say whether this excessive evaporation is characteristic of the entire province, but so great is it here in the cold weather (December and January) that dew is never observed upon the ground.

ARMY MEDICAL DEPARTMENT.

Return showing a comparison between the highest daily temperature at Puchmurree and Hoshungabad, a station in the adjacent plains, for 1872* :—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	Remarks.
Hoshungabad ..	81	89	99	103	108	104	88	84	88	This gives an average for these months of 10·2° in favour of Puchmurree.
Puchmurree ..	74·8	79	90	92·7	96·6	93·1	73·5	72·2	79·6	

* I am indebted for the information from which the figures for Hoshungabad was taken to Dr. Cullen, Civil Surgeon of that station.

APPENDIX TO REPORT FOR 1875.

Meteorological Observations taken at Puchmurree during the year 1871.

Months.	Reading of Barometer.				Temperature of air.						Dry and wet bulb.		Mean deduced dew point.	Mean degree of humidity.	Rain.		Wind.	Remarks.
	Mean for month.	Highest in month.	Lowest in month.	Range.	Highest in month.	Lowest in month.	Range in month.	Mean of all highest.	Mean of all lowest.	Mean daily range.	Approximate mean for month.	Mean of dry bulb.	Mean of wet bulb.		Number of days it fell.	Amount collected.		
March ..	in. 26.38	in. 26.49	in. 26.26	in. .23	97	43	54	87.7	55.4	32.3	71.5	81.3	54.6	°	S. W.	* Owing to the extreme dryness of the atmosphere for these months, the degree of humidity cannot be calculated from Mr. Glashier's Tables.
April ..	26.28	26.47	26.18	.29	99	63	36	94.1	70.7	23.4	82.4	86.7	58.9	°	..	..	W.
May ..	26.24	26.44	26.12	.32	97	62	35	92.4	72.4	20.0	82.4	85.0	66.8	°	6	.98	W.	
June ..	26.10	26.26	25.91	.32	98	51	47	80.1	67.0	13.1	73.5	76.4	69.4	°	21	24.40	W.	
July ..	26.12	26.24	25.97	.27	83	61	22	74.8	66.0	8.8	70.4	70.9	68.3	°	24	38.82	S. W.	
August ..	26.12	26.29	26.03	.26	81	65	16	74.2	66.6	7.6	70.4	69.5	67.8	°	21	13.93	S. W.	
September ..	26.22	26.48	26.05	.33	85	60	25	77.6	66.2	11.4	71.9	72.6	69.1	°	22	27.71	N. W.	
October ..	26.50	26.62	26.38	.24	95	51	44	88.8	58.1	30.7	73.4	77.9	61.4	°	..	..	N. W.
November ..	26.56	26.69	26.42	.27	94	50	44	86.2	55.2	31.0	71.2	75.3	60.2	°	..	..	W.
December ..	26.57	26.64	26.34	.30	90	40	50	83.3	51.0	32.3	67.1	70.2	57.0	°	3	.77	S. W.	
Mean ..	26.30	26.46	26.18	.28	91.9	54.6	38.3	84.1	62.8	21.0	73.4	76.5	63.3	°	97	106.61	..	Total Rainfall.

Meteorological Observations taken at Puchmuree during the year 1872.

Months.	Reading of barometer.				Temperature of air.							Dry and wet bulb.		Mean degree of humidity.	Rain.		Wind.	Remarks.
	Mean for month.	Highest in month.	Lowest in month.	Range.	Highest in month.	Lowest in month.	Range in month.	Mean of all highest.	Mean of all lowest.	Mean daily range.	Approximate mean for month.	Mean of dry bulb.	Mean of wet bulb.		Number of days it fell.	Amount collected.		
January	in. 26.51	26.62	26.42	in. .20	84	36	48	74.8	49.7	25.1	62.2	68.0	53.1	° 41.3	S. W.	* Owing to the extreme dryness of the atmosphere for these months, the degree of humidity cannot be calculated from Mr. Ghashier's Tables.
February	26.53	26.66	26.41	.25	87	35	52	79.0	50.7	28.3	64.8	72.7	53.2	° 38.5	1	0.11	N. W.	
March	26.53	26.66	26.45	.21	101	53	48	90.0	63.9	26.1	76.9	83.6	57.5	° 41.7	1	0.50	N. W.	
April	26.45	26.58	26.35	.23	98	59	39	92.7	68.9	23.8	80.8	86.0	61.2	° 45.1	1	0.5	S. W.	
May	26.39	26.58	26.30	.28	101	67	34	26.6	75.8	20.8	86.2	90.1	64.5	° 48.4	..	..	N. W.
June	26.22	26.42	26.2	.40	105	63	42	98.1	74.1	19.0	83.6	83.8	72.0	° 64.3	14	4.75	N. W.	
July	26.16	26.32	26.5	.27	85	62	23	73.5	64.2	9.3	68.8	67.6	65.1	° 63.1	26	32.17	N. W.	
August	26.19	26.47	26.7	.40	78	65	13	72.2	66.4	5.8	69.3	70.4	68.9	° 67.7	24	25.33	S. W.	
September	26.35	26.49	26.10	.39	88	64	24	79.6	66.0	13.6	72.8	74.0	69.3	° 65.8	11	12.52	S. W.	
October	26.49	26.64	26.34	.30	95	44	51	82.1	55.5	26.6	68.8	73.4	60.5	° 51	1	0.92	S. E.	
Mean	26.38	26.54	26.25	.29	92.2	54.8	37.4	83.3	63.5	19.8	73.4	76.9	62.5	° 52.6	79	76.35	..	Total Rainfall.

The station possesses an abundant supply of water at all seasons of the year, and the analysis of it, published in the report by the chemical examiner to Government for 1871, a copy of which will be found on page, 017 shews it to be a water of unusual purity. The explanation of its chemical excellence is to be found in the nature of the soil through which it percolates and which, as before stated, is almost pure silica, and again, in the soft sandstone which everywhere underlies the soil, and which contains the permanent supply. A cleaner filter and receptacle it would be difficult to find. It is essentially a soft water, and rather tasteless to drink, and these qualities are due, no doubt, to its purity, or, in other words, to the absence of carbonic acid and alkaline salts from its composition, and to this absence possibly also is due the non-prevalence of diarrhoea on the hill. The supply for the troops is procured from two wells situated near the Nullah, about 500 yards from barracks; both are protected by a wall and covered by a sheeting of corrugated iron, but the water is raised by the old and objectionable method of the "dhole," or leathern bag. Besides these wells, there are three others in the station, one for the Sudder bazaar, which is also covered in and protected by a wall; one in the civil lines; and one near the lines occupied by the prisoners from the Hoshungabad jail in 1870; both the latter are uncovered.

As stated above, the supply is abundant, and although fears were expressed upon the subject by Engineer Officers in 1871, when discussing the thorough drainage of the plateau, the experience of the officer in charge of the works here* during last hot season, gave a satisfactory settlement of the question. In May he commenced to deepen the wells in which the water had then only sunk to the distance of about 14 feet from the surface, and although his workmen were at the pumps day and night, there was great difficulty in exhausting the contained water, so rapidly was it poured in from the sandstone which forms the sides of the wells.

The distance from the surface at which water is found in the soil varies from 0 in the monsoon season, to from 12 to 16 feet in the hot weather, but of course, this remark refers only to the concavities on the plateau, as a different experience of the height of the surface level of the water would be gained if wells were sunk on the convexities; but even on some of these, where cuttings have been made, a practical demonstration of the proximity of water to the surface of the soil may be observed, even upon considerably raised portions of the plateau.

The following is offered as an explanation of this saturated condition of the soil of the station during the monsoon:—In the early part of it, the rain water, although for the most part carried off by the surface outlets, sinks rapidly into all the sandy and gravelly portions of the hill, and into the upper stratum of the sandstone which has been emptied during the previous dry season. This sandstone, or subsoil as it may be called, becomes rapidly refilled, and about the middle of the monsoon is filled to saturation, and when this happens the water in the soil rises rapidly and soon reaches the level of the surface in the undrained portions of Puchmurree. It continues at this height until the rains are over, when it sinks slowly till the following season.

A proof of the manner in which the sandstone causes the water-logged condition of the soil may be found in any of the cuttings which have been made here, and the best example I am acquainted with is to be seen at the cantonment bridge, where, in a vertical section, water issues rapidly from between the sandstone and the soil which overlays it, at a height of $2\frac{1}{2}$ feet from the surface.

In concluding these remarks upon the water, which I may repeat is very pure, and from the use of which no disease is likely to arise, I regret I have not been able to bring a more scientific knowledge to bear upon the relation of its surface level to the soil and subsoil; but as I am firmly impressed with the belief that it is in this difficulty with which the subsoil empties itself of water is to be found one of the greatest causes of the constant presence of malaria here; I hope I have said enough to direct attention to it, with a view to its remedy by drainage.

* Lieut. A. G. Clayton, R.E.

Return of Portable Waters of Puchmuree, by Dr. Whitwell, from the 15th to 23rd March 1871.

Date of Analysis.	Position of Water Source and by whom used.	Physical properties of water after passing through filter paper.	Re-action.	Degrees of total hardness.	Degrees of permanent hardness.	Degrees of removable hardness.	Grains of oxygen required for oxidation of readily oxidisable organic matter of 1,000 grains of water.	Ammonia.	Phosphoric acid.	Nitrous acid.	Grains of nitric acid in 70,000 of the water.	Total solids in 70,000 grains of filtered water.	Volatile matter.	Mineral matters.	Earthy salts, silica, oxide of iron, insoluble in water.	Lime calculated as carbonate.	Silica.	Soluble salts.	Chloride of sodium.	Sulphate of soda.	Carbonate of soda.	Remarks.
March 15th	River above the native village. Used by the villagers and camp followers for drinking and other purposes ...	Good	Alkaline	2.18	1.45	.73	.00091	Trace	None	Trace	...	8.4	2.1	6.3	3.05	2.01	Trace	2.8	.63	Trace	.951	
" 19th	" Old Jail" well, situated about 40 yards east of the nullah and opposite the native village. Used by the natives for all purposes ...	Good	Alkaline	3.07	3.05	.02	.00068	None	None	None	...	10.5	2.8	7.7	5.25	3.57	Trace	2.45	.504	Trace	1.445	This well has neither efficient platform nor drain, and in consequence much spilled water and slush accumulate about it.
" 23rd	Well in the public garden. Used by the European detachment and prisoners for drinking ...	Good	Alkaline	1.36	1	.36	.00067	None	None	None	...	7	7	6.3	3.05	3.24	Trace	2.08	.84	Trace	1.522	This well has neither platform nor drain; it is surrounded by garden shrubs. Much slush accumulates about its mouth.

The means of accommodation here have been different from that of other Accommoda- stations during the season of 1871, and this fact deserves attention in estimating tion. the effects of the climate upon the constitution of Europeans. During that season the troops occupying the depôt were under canvas from their arrival in February and March,* until about three weeks of the monsoon weather had passed, and they were housed for the remainder of their stay in unfinished barracks.

This exposure during the hot season, and inadequate shelter in the rains, were alleged to have been accountable for the undue prevalence of intermittent fever amongst the men of the detachments of the 1st Battalion of the 19th Regiment and the 79th Highlanders last year, and I subscribed to this opinion upon my arrival, in the absence of evidence to arrive at a different conclusion, and partly because I was aware of how "fever-poisoned" the men of both regiments† were from their previous service in the Peshawur valley.

There can be no doubt that vicissitudes of climate such as they were exposed to were quite competent to cause frequent attacks of fever in men so poisoned by malaria as they were; but the experience of the present season, when the men of the 44th Detachment, fresh from England and well housed in the new barracks have suffered still more from this disease would seem to nullify the conclusion of last year, and to prove that there is another agent here active in the production of intermittent fever.

Four barracks were commenced in 1871, completed in the present season, and Barracks. since then occupied by a detachment of the 44th Regiment. Each barrack is capable of containing 48 men in four rooms, with a small room at each end for non-commissioned officers, while across the centre and at right angles to the line of the building, is a large room which serves as a dining and recreation hall. They are built of brick and mortar, roofed with a single sheeting of corrugated iron, with a verandah round the dormitory rooms, 9 feet 6 inches wide, and which is also roofed with the same material. They are warmed by means of open fire-places, and each room is ventilated by one door and three windows on each side, and also by the space between the verandah-roof and roof proper,—being merely connected by a perforated zinc plating.

The plan‡—of which drawings are enclosed—of the barracks appears to be an admirable one, and the soldier is very comfortably housed in them; but there are a few points connected with them which deserve attention,—namely,

- A. Their accommodative capacity.
- B. The protection they afford in the hot season.
- C. Their ventilation.
- D. Their site.

In the original plan, 77 superficial and 964 cubic feet were allowed for each occupant, in accordance with the standard amount for barracks in the Himalayan range‡; but the difference of altitude would appear to deserve consideration, and although the present space is probably sufficient for the cold season and rains, it does not appear to be so for the hot weather, when the thermometer often registers 98 and 99 in the barrack-room, and in which, after the westerly wind lulls in the evening the atmosphere becomes very close.

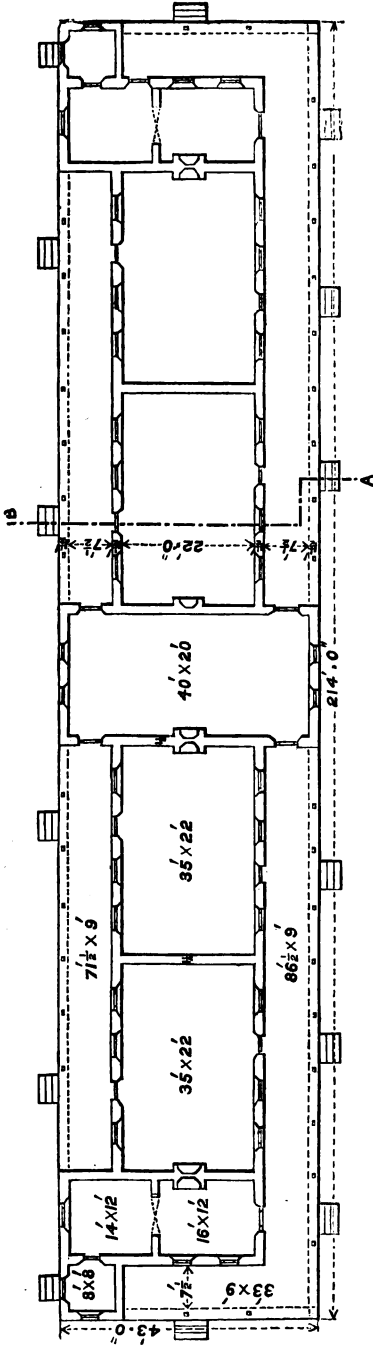
Regarding the second point, it may be mentioned that a single sheeting of corrugated iron does not appear to be a sufficient protection from a tropical sun, and that such a roof is also objectionable from its radiating downwards absorbed caloric was proved by the experience of last hot season. In April, at the recommendation of the writer, a ceiling—white cloth, lime-washed—was erected in the barrack which is used as a hospital, and a series of experiments carried on by order of His Excellency the Commander-in-Chief, showed that the temperature at mid-day in the wards thus slightly protected was two degrees of Fahrenheit less than in the other barracks.

* The detachment 1st Battalion 19th Regiment reached Puchmuree on the 21st of February, that of the 79th Highlanders on the 7th of March, 1871.

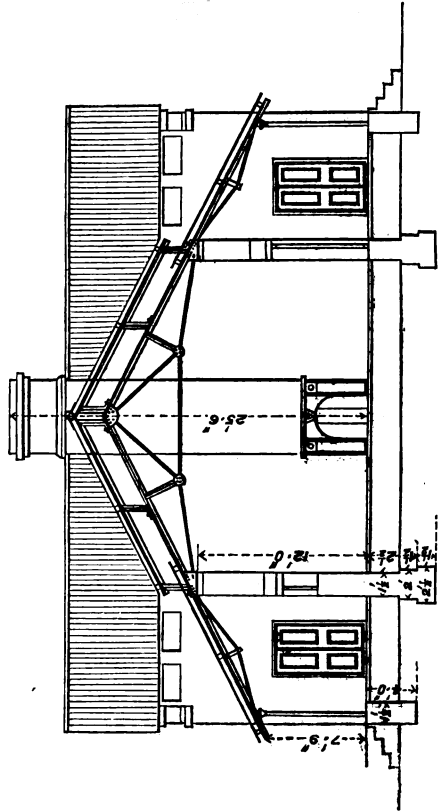
† The writer served as an Assistant Surgeon in the 1st Battalion 19th Regiment in Peshawur.

‡ 7,000 feet may be taken as a general average for the stations in the Himalayas, while the altitude here, as before stated, is only 3,500 feet.

GROUND PLAN.



CROSS SECTION A. B.



This subject has been officially represented, and is alluded to in this report merely with a view towards hastening the erection of a suitable ceiling, or the completion of the inner roof.

The ventilation—the third point above mentioned—has scarcely been a success, as the non-erection of the inner roof rendered it necessary to block up the perforated zinc on the weather side to keep the rain out, and thus one-half of the outlet ventilation was lost. The windows also, which are three in number in each room, 3 feet 8½ inches by 2 feet 4¼ inches, although suited to a strictly temperate climate, and probably to this climate during the cold weather and rains, scarcely appear large enough to ensure a thorough ventilation of the sleeping-rooms during the hot season.

The barracks are placed in échelon, from north to south, on what is known locally as the “barrack ridge,” with the front facing towards the west. The site has some advantages, such as being on open ground and tolerably close to water; but the experience of this season would nevertheless seem to show that it is open to objections, and these remarks more especially refer to the position of Nos. 4 and 3 barracks. These buildings are situated very close to uncleared jungle and ravines; and a funnel-shaped ravine leads from the Bungungah valley, where there is swampy ground, to within 50 yards of No. 3 barrack. To prove the validity of what may appear to be a theoretical objection is, of course, not easy, but I would beg to invite attention to a comparison of the following return:—

RETURN showing the Admissions into Hospital from each Barrack from Paroxysmal Fevers, from the 17th of March to the 31st of October.

No. of Barrack.	Average Strength in Barrack.	Admissions into Hospital from Fever from each Barrack.	Remarks.
	47.05	29	
2	38.75	44	One room in this Barrack is occupied as a canteen.
3	50.31	73	
	14.42	9	Three rooms in this building are occupied as a hospital.
Total ..	150.53	155	

With regard to the above Return, the extreme excess of admissions from fever from No. 3 barrack would appear to be conclusive evidence against the healthiness of its situation; but, on the other hand, it must be mentioned, that the occupants are younger soldiers than the men of No. 1 barracks, with which it compares so unfavourably, by an average of 1 year and 1 month, and that they were selected from the regiment as weakly and likely to derive benefit from the change to this climate. I can scarcely believe, however, that these two conditions are to be held accountable for the great difference in the admissions into hospital, and I think the subject might be usefully investigated during another season.

There is one other point in connection with the site which may be mentioned—viz., whether it is sufficiently raised above the general level of the plateau? I am inclined to a contrary opinion, as it appears desirable in a station where malaria is prevalent to seek the highest ground possible for habitations, and for the same reason I would beg to recommend the ridges which form the southern boundary of the Puchmunsee basin as sites for any future barracks that may be erected here.

Subsidiary
barrack
buildings.

No building of this kind of a permanent nature has yet been sanctioned—shelter only being aimed at in the absence of decision as regards the future of the station. The sheds in use as wash-houses and cook-houses have answered their purpose; but the latrines have been highly objectionable, consisting, until lately, of a stick supported on uprights, and without any protection for the pans, and permitting freely of the contamination of the soil by the liquid excreta.

The liability of this condition to prove a future source of disease, more especially in a sandy soil like that of this station, was officially brought to notice, and the rears are now being improved. Since this was written the rears have been put into a good sanitary condition.

Disposal of
sewage.

During 1871, the dry-earth system of conservancy, with pit burial, was in use, and during the present year the trench system of conservancy was introduced; but a satisfactory disposal of the sewage has not been effected. This has arisen from insufficient establishment, and from the sweepers being obliged to carry the excreta to the trenches, and who, in the natural wish to lighten their load, have been in the habit of disposing of the liquid matter and pan washings by pouring them on the ground near the rears. Representations of the serious results likely to arise from such a practice, and from a similar one on the part of the cooks with their refuse washings, were made to the Officer Commanding, and the employment of a filth cart recommended, but the recommendation, although forwarded by him, has been productive of no result, and the sewage is still carried to the trenches by the sweepers.

Clothing.

In 1871, the troops wore white in the hot weather and serge during the monsoon, with the English tunic for the night guards in the latter season; but during the present year, the 44th Detachment have worn their English clothing all through the rains.* In the warm weather which succeeds the monsoon white becomes again suitable for day wear, but it is very necessary at this season that the men exposed on night duty should be dressed in English clothing, owing to the difference between the day and night temperature, and also that serge should be worn in the mornings and evenings.

For the months constituting the cold weather, serge clothing is suitable for day wear, with the English tunic for night guards; and at this season of the year, and, in fact, at all seasons, flannel should be worn as an under-clothing, on account of the sudden changes of temperature which are characteristic of the climate, and also on account of the diurnal range, which averaged, in 1871, from 16° Fahrenheit in August to 54° Fahrenheit in March.

Recreation.

There is fair ground for cricket on many parts of the plateau, and during the season the men of the 44th Detachment have taken every opportunity of the facilities afforded for playing the game, but the great majority of them prefer "long bowls," and I may say that this game has occupied the greater part of their time since they came here. It seems to be an admirable way of taking exercise, and appears to be a game deserving of every encouragement—one of its greatest advantages being that its rules are so simple as to preclude the possibility of disputing on the part of the players. The detachment has a library and reading-rooms, with a good supply of books and newspapers, and situated in a large and well-ventilated room,† and the other half of the same building they have converted into a theatre, and fortnightly performances at the "Theatre Royal, Puchmurree," have done much to amuse the men and residents of the station.

The temperate nature of the climate permits of the men spending a good deal of the day in the open air without danger, and fishing, shooting, and catching butterflies have been amongst their relaxations; but in the monsoon season, when a great part of the day must be unavoidably spent in barracks, the want of indoor amusement is much felt by all, and particularly by those soldiers whose education is limited. To meet this very necessary requirement for the soldiers stationed here, a covered-in fives court or gymnasium and a skittle-alley or two might be sanctioned, and the men might also be encouraged to cultivate gardens (near barracks), with beneficial advantage to themselves.

* This arose through their not being in possession of serge.

† This building was erected for a guard-room, but as it is much too large for the requirements of a small detachment it has been used as above described.

The rations generally have been of very good quality, and the beef ration Diet of the has been the best I have ever seen issued to troops in this country—a circumstance easily accounted for by the abundance of grass which grows in the valleys of the plateau, and which retain, in these places, its rich and succulent qualities throughout the greater part of the year.

The following has been the composition of the diet during the present season :—

Bread, 1 lb.
 Meat, 1 lb. (beef, 6 days ; mutton, 1 day.)
 Rice, 4 ozs.
 Salt, $\frac{2}{3}$ oz.
 Sugar, $2\frac{1}{2}$ ozs.
 Tea, $\frac{5}{7}$ oz. $\left\{ \begin{array}{l} \frac{1}{3} \text{rd China} \\ \frac{2}{3} \text{rds Indian} \end{array} \right\} \text{mixed} \left. \vphantom{\begin{array}{l} \frac{1}{3} \text{rd China} \\ \frac{2}{3} \text{rds Indian} \end{array}} \right\} \text{on alternate days.}$
 Coffee, $1\frac{1}{2}$ oz.
 Potatoes, 12 ozs.
 Mixed vegetables, 4 ozs.

The mixed vegetable ration consisted of 4 ozs. of onions from the 17th of March (date of arrival of detachment of 41th in 1872) till the 13th of May 2 ozs. of onions and 2 ozs. of pumpkin from the 14th of May to 10th of August, and again 4 ozs. of onions daily from the 11th of August to present date.

In 1871 the ration was composed as above from the 29th of May until the departure of detachment of 79th Highlanders for England in September, but during the early part of their stay at the depôt the vegetable ration consisted of 1 lb. of potatoes only, and to this want of variety in the vegetable ration, the medical officer* then in charge attributed the prevalence of scurvy, as well as scorbutic dysentery, which was observed in the men of the 79th Highlanders during that season.†

This occurred previous to my arrival in July 1871, but during the subsequent two months I was in charge of that detachment a mild form of scurvy of the gums was to be observed amongst the men, and although not likely to lead to serious consequences, it was sufficient to warrant the continuance of a ration of lime juice which had been recommended by my predecessor.

During the present season, except in six cases, who were treated for this condition soon after their arrival, the detachment of the 44th Regiment enjoyed an immunity from scurvy till October. In the week ending Saturday, 12th of that month, a few cases were observed amongst the fresh sick, and at the health inspection of that date 55 men were picked out who showed symptoms of the disease. In the great majority of these, it was very slight, but, bearing in mind the experience of last year, it was considered advisable to recommend the daily issue of a ration of lime juice as a preventive measure.

PART II.

The detachment 79th Highlanders‡ to which the remarks for 1871 have reference, arrived at Puchmuree from Kamptee, on the 7th of March in that year, 100 strong, and these 100 men were composed of 80 duty soldiers and 20 men who, although not actually suffering from disease, were selected from the regiment by the surgeon as delicate, and likely to derive benefit from a change to this climate. Regarding these 20, it must be mentioned that no return accompanied them pointing out the specific diseases from which they had previously suffered, and that, on this account, it is impossible to state how far any

Medical history of 1871.

* Staff Assistant Surgeon T. Murtagh.

† When this matter was enquired into it was found that the men had tired of the potatoes, and were eating bread with their meat.

‡ A detachment similar in strength of the 1st Battalion 19th Regiment, from Saugor, also arrived at Puchmuree in February of that year, but as they were recalled to Jubbulpore in June, owing to want of accommodation, and as their records accompanied them no medical history of that detachment can be furnished.

separate disease was benefited or the reverse by the climate of Puchmurree but I believe I am correct in saying that these men were not the ordinary convalescents of the regiment, as the latter were sent to Wellington, in the Neilgheries.

In considering the percentage of sick, deaths, &c.,* in the 100 men, however, a certain allowance should be made for these 20 delicate soldiers who composed a fifth part of the entire number.

The first illness of any consequence took place in the detachment in April, when 8 cases of intermittent fever and 17 of venereal disease were admitted into hospital. In May there was a decrease in the number of admissions from these two diseases, but 2 cases of diarrhoea and 2 of dysentery were admitted, and of the latter 1 proved fatal. In June, paroxysmal fevers were prevalent, 14 being admitted, and the same remark applies to bowel complaints, 3 men being admitted with diarrhoea and 3 with dysentery, one of the latter proving fatal, and during the month scurvy of the gums was observed amongst the men generally.

In July the admissions were below the average of the previous months, the decrease being most marked in bowel complaints and in venereal diseases, while, in August there was an increase in paroxysmal fevers and in venereal, and so liable were some of the men to ague in this month that I considered it necessary to have quinine issued as a prophylactic to men lately discharged hospital, and to a class of men who may be described as habitual fever subjects.

In September the detachment left for England, and the only cases of importance observed in that month were one of remittent fever, accompanied by bowel complaint; one case of abscess of the liver, and which terminated favourably; and a case of measles of a malignant form, which proved fatal.

During the six weeks succeeding the monsoon, the few Europeans who remained on the hill enjoyed good health, but in the cold season both Europeans and natives suffered severely from fevers and dysentery. The station Staff Officer and the Engineer Officer were constantly attacked with ague, and so were the wives and children of the non-commissioned officers of the dépôt.

The natives of all classes were attacked epidemically with this disease; numbers of them left the hill, and amongst the poorly-clad and badly-housed who remained the mortality from this cause and from dysentery was severe. I regret that no statistics of the native community can be furnished; but the following return will show the admissions, deaths, &c., from the different classes of disease amongst the men of the detachment of the 79th Highlanders for the six months they occupied the dépôt:—

Average Strength 99	Admitted.	Died.	Ratio per 1,000 per Annum.	
			Admitted.	Died.
Diseases.				
Eruptive Fevers	1	1	20·2	20·2
Paroxysmal Fevers	41	..	828·2	..
Dysentery and Diarrhoea	13	2	262·6	40·4
Venereal Diseases	40	..	808·0	..
Hepatic Diseases	1	..	20·2	..
Diseases of the Chest	1	..	20·2	..
Rheumatism	1	..	20·2	..
Wounds and Injuries	3	..	60·6	..
Other Diseases	22	..	440·4	..
Total	123	3	2480·6	60·6

With regard to the above return, it will be observed that the principal admissions into hospital in 1871, were due to three classes of disease, viz. :—

Paroxysmal fevers ;
Bowel complaints ;
Venereal diseases.

The admissions from the first of these gives a high average of sick, but the attacks were generally mild, and gave little anxiety for the safety of the patients. They showed, however, a marked tendency to recur in the same individuals, and to be preceded by painful congestion of the spleen and liver.

The latter was a curious clinical feature in some of the cases, and at first was a little puzzling, as it was a common occurrence for a man to come to hospital in the morning complaining of severe pain in either of these organs, and by the middle of the day to have become the subject of an attack of ague, and to have lost the symptoms of the morning. The majority of the men in whom this occurred had been some time in India, and had had fever in Peshawur, and probably in them the viscera referred to had undergone organic change consequent upon the intense malaria of that district, and it is a noteworthy fact that amongst the men of the 44th Regiment who have occupied the dépôt this year, and who are fresh from England, the clinical feature under notice has not once been observed.

The attacks of this disease were further remarkable for the shortness of the cold stage, sickness of stomach, and severe headache during the hot stage, and a prolonged sweating stage, which brought to those accustomed to the disease complete relief until the next paroxysm.

The men who suffered habitually were pale and anæmic-looking, but, nevertheless they used to enjoy fair health in intervals of their attacks, and, except in two cases, I did not observe any enlargement of either the spleen or liver consequent upon this disease. In one man the spleen was considerably enlarged, but the patient said it had been so previous to his arrival at Puchmuree, but in the other patient, enlarged liver, ending in abscess, appeared to be a sequela of fever from which he constantly suffered here.

The next class of diseases to be noticed as causing admissions into hospital are bowel complaints, and this class furnished 2 out of the 3 deaths which occurred in the detachment of 79th Highlanders.* These bowel complaints—viz., 8 cases of diarrhoea and 5 of dysentery occurred previous to my arrival here, but I learned from the Medical Officer who preceded me that, in his opinion, they were due to a scorbutic condition of the blood which had become developed amongst the men, and the correctness of his view seems to be borne out by the mortality, 2 deaths out of 5 cases of dysentery being very high, and only likely to be experienced in the scorbutic variety of that complaint ; and, secondly, by the disappearance of the disease from the detachment on the receipt of an issue of lime juice.

The next class of diseases causing inefficiency is venereal, and the admissions from these diseases shew an extremely high average. This was to a great extent unavoidable during the early part of the occupation as no Lock Hospital had then been established and because, in addition to the regular prostitutes, there were numbers of Coolie women employed on public buildings who infected the soldiers, but over whom very little preventive control could be exercised. The disease, however, was considerably reduced in frequency towards the end of the season by the establishment of a Lock Hospital, and the periodic examination of the public women and the men of the detachment. Of the other remaining diseases in the return, that under "hepatic diseases" has already been referred to as terminating favourably. An abscess formed was expectorated through the lung, and the patient made a good recovery. The case entered against "Diseases of the Chest" was one of acute pleurisy, which presented nothing unusual, and terminated in recovery, and of the other diseases in the return, none are of importance, and include such cases as hæmorrhoids,

* The other death, as before mentioned, was due to a malignant form of measles. In addition to these deaths I may mention that there were two fatal cases amongst the men of the 1st Battalion 19th Detachment, one from pulmonary consumption and the other from abscess of the liver.

contusions from stones, warts, slight inflammation of the eye, &c., and, as they have no bearing upon the subject of this report, I will now proceed with the medical history of 1872, from the date of arrival of troops at the dépôt on the 17th of March till the end of October.

ical his-
of 1872.

Before entering on this part of the subject, it is again necessary to notice the composition of the detachment 44th Regiment which occupied the dépôt this year. Out of the 150 men, 62 were the unmarried soldiers of letter I company, in good health, and averaging about 24 years of age, 68 were very young soldiers who had not arrived at mature growth, and who were selected from the regiment as likely to derive benefit from the change of climate, and 10 were patients who were discharged hospital to accompany the party.

With regard to these patients, 9 of them were under treatment for trivial diseases, and were soon sent back to the ranks, and the other man was suffering from enlargement of the liver, so that, in considering the effects of the climate of Puchmuree, it will be necessary to bear in mind that out of the 150, all, with the exception of 25, were young soldiers, who had recently landed in India, and who had not arrived at developed manhood and one man was a patient suffering from enlarged liver.

On the arrival of the detachment at Puchmuree, the patients above referred to were taken on the hospital books, and in the next week a case of rheumatism and a few cases of trivial diseases, brought on probably by exposure on the line of march, were admitted, but towards the end of the month (March) the prevalence of intermittent fever became marked in the detachment, and from that date to the date of writing (November 3), there has been a constant stream of fever patients passing through the hospital, as will be seen from the following return :—

RETURN showing the admissions into Dep't Hospital, Puchmuree, during each month from Paroxysmal Fevers.

Average Strength, Rank and File.	March 17th to 31st.	April.	May.	June.	July.	August.	September.	October.	Total.	Remarks.
149·31	8	21	32	23	27	17	16	8	155	In addition to these cases shewn on the books as admitted 74 cases were treated by hypodermic injection of quinine and by quinine internally since the 1st of August, without admission.

The disease reached its greatest height in May, and might be described as of epidemic frequency, 32 men being admitted, and during this month it also became necessary to establish a convalescent party to whom quinine was given every evening as a prophylactic. Three cases of dysentery and 2 of inflammation of the liver also occurred in the detachment in this month, and one of the latter proved fatal.

In June the general health of the detachment improved, and I was able to dismiss a good many men from the convalescent list, but the number requiring admission into hospital from ague was nevertheless high, and amounted to 23.

The admissions from other diseases during this month were of no importance, but July was again unhealthy, as 27 cases of ague required admission into hospital, and the convalescent list was also increased; and in this month there occurred as well 14 cases of venereal diseases.

In August there was a decrease in the number of admissions from all causes; but, although the returns show only 17 cases of fever as admitted into hospital, that number does not accurately represent the amount of inefficiency from this cause, as 1 began in this month to admit only the more severe cases, and to treat the remainder without admission by the hypodermic injection of

quinine, but the services of the men so treated (17 in number) were not available for duty of any kind while attending hospital.

In September ague was still prevalent, 16 cases being admitted and 29 treated without admission by the hypodermic injection of quinine, and in this month there occurred also 2 cases of severe remittent fever and one case of severe dysentery. The experience of the month of October was very similar as regards fever, 8 men being admitted into hospital and 35 treated as external patients; and in this month there also became noticeable amongst the men in about one-third of the number, a slightly scorbutic state of the gums, rendering the daily use of a ration of lime-juice necessary.

The medical history concludes with this month, and the following Return shows the admissions into hospital, deaths, &c., in the 44th detachment from 17th of March to October 31, 1872, from all causes:—

**ADMISSIONS into Hospital up to 31st October, 1873, of Detachment
44th Regiment.**

Average Strength 149·31					Admitted.	Died.	Ratio per 1,000 per annum.	
Diseases.							Admitted.	Died.
Eruptive Fevers .. .. .	..	..	..	..	155	..	1658·7	..
Paroxysmal Fevers .. .. .	..	..	..	..	9	..	95·7	..
Dysentery and Diarrhoea .. .. .	..	..	..	..	6	1	63·6	10·0
Hepatic Diseases .. .. .	..	..	..	..	42	..	449·4	..
Venereal Diseases .. .. .	..	..	..	..	3	..	31·4	..
Diseases of the Chest .. .. .	..	..	..	..	1	..	10·0	..
Rheumatism .. .. .	..	..	..	..	4	..	42·1	..
Wounds and Injuries .. .. .	..	..	..	..	21	..	224·3	..
Other Diseases .. .. .	..	..	..	..
Total .. .. .	..	..	..	..	241	1	2575·2	10·0

In reviewing the medical experiences of this year, and eliminating such Analysis of diseases as "venereal," other diseases, &c., which have no bearing upon the medical his- subject of this Report, it will be observed that the chief diseases have been:— tory of 1872

Malarial fevers;
Bowel complaints;
Diseases of the liver;
Diseases of the chest;
Rheumatism.

Malarial fevers have been extremely prevalent in the detachment as, in addition to the 155 men whose cases were severe enough to call for admission 74 men were treated without admission by the hypodermic injection of quinine and by other means whose cases do not appear in the returns, but whose services were not available for duty for almost as many days as if they had passed in the ordinary manner through the hospital. This arose from the fever, in the first instance; and, secondly, from the swelling and stiffness of the arm, which very frequently followed this mode of treatment, preventing the soldier from using his rifle. Clinically considered, the disease has usually been of mild type, and although every variety of this form of fever, from the mildest quartan ague to severe remittent, has been observed from time to time, still in the great majority of cases the symptoms have been such as to cause little anxiety for the patient, and this will be better understood on referring to the Mortality Table; no death having taken place in the detachment from this cause during the period. During the hot weather the attacks were accompanied by considerable suffering, and particularly a first attack; and

they were further remarkable for suddenness of invasion, as it was very common for a man to have drilled on parade in the morning, breakfasted, and yet to be the subject of severe febrile symptoms by 10 A.M. No general description would apply to these attacks, but the rule was for them to commence with headache and giddiness and severe vomiting, and to these symptoms succeeded the pyrexia and sweating, and, on the following day, there was an intermission, incomplete certainly, but still sufficient to show that the disease was ague, although the shivering fit was absent.

A second attack during the hot season generally commenced with a cold chill, and this gave place once the rains began to the regular shivering of ague, and such is the character of the disease up to the present time, although I may mention that the cold stage is short when compared with the ague of other parts of India.

As in 1871, the disease recurs very often in the same individuals, as there are some men who have had as many as 11 and 12 attacks of ague since their arrival at Puchmurree, nor do these men appear to shake off the disease, and generally return to hospital after an interval varying from three weeks to a month. With regard to these repeated attacks of ague in the same men, it is very satisfactory to find how trifling it has been, as in 30 men who had suffered three times and upwards, and who were examined on the 24th of October, moderate enlargement of the spleen was detected in 5 only, and very slight enlargement in about the same number, while in the remainder this organ had undergone no detectable change. Such a circumstance may probably be accounted for by the short cold stage for which the ague prevalent here is remarkable, and of which an unfavourable contrast is afforded by the ague of Peshawur, where the cold stage sometimes lasts as long as 6 or 7 hours, and where the disease is invariably followed by enlargement of the spleen.

It should not be concluded, however, from the experience of the 7 months during which the 44th detachment have been at Puchmurree, that the fever here is of such a mild nature as not to cause serious splenic enlargement, as the time is too short for such a change to have taken place in the constitution of Europeans, even in the most notoriously malarious district, and besides, I have observed in a Māli* in the public gardens here one of the largest spleens I have ever met with, and the same condition, but not to so great an extent, in other natives. Whether Europeans, during a second year's residence, would be similarly affected can only be decided by experience, but I have not observed such a condition in either the Officers, Staff, non-commissioned officers, or their families, who have been here a second season, yet against this it must be stated that, although these residents have all suffered from fever, they have not been the subjects of those repeated attacks under consideration.

In one man,† the disease was very severe, and since he was attacked in April he has done no duty, and has been almost continually in hospital. He is now under treatment for anemia, due to malarial poisoning, and his constitution appears to be completely broken down, and as the veins of his legs have become extensively varicose, it is probable he will have to be discharged the Service.

The next class of diseases due to climatic influences to be noticed are bowel complaints, of which 1 case of diarrhoea and 7 of dysentery have been admitted during the season.

Of these the case of diarrhoea and 3 of those of dysentery were mild, and yielded easily to treatment. In one‡ of the remaining 4 the disease was severe, but recovered in about the usual time under ordinary treatment, and in the second,§ the disease was followed by an attack of remittent fever, and the patient died subsequently from an abscess of the liver. Cases 3|| and 4 occurred in the same man, and on the second admission the disease assumed a chronic character, and he was 89 days in hospital. He made, however, a complete recovery, and,

* This man came to Puchmurree early in 1871 from Hoshungabad, where he says he had good health. During last year he was a continual sufferer from ague, and in this year, during the rains, his spleen began to enlarge, although he suffered but little from the fever.

† Private Edwards.

‡ Private Kemp, 44th Regiment.

§ Private Young, 44th Regiment.

|| Private James, 44th Regiment.

for about two months after he was discharged from hospital, on the 18th of August he had good health, when he became the subject of acute inflammation of the liver, from which he is now convalescent.

Six cases of hepatitis were admitted into hospital during the period, and 3 of these occurred in the same soldier, and who has already been referred to as having been sent here from Kamptee as a patient suffering from this disease. This man* has not benefited from his residence here; he has never been fit for duty, and his health is now so indifferent that it will be necessary to bring him before the annual Invaliding Committee with a view to his being sent to England for change of climate. In case 4 the disease was of a subacute nature, and followed a prolonged attack of fever; but the patient, although a long time in a serious state, made a good recovery, and is now in excellent health. Case 5 has been already alluded to as having proved fatal by the bursting of an abscess into the cavity of the abdomen, and the sixth case is under treatment at the date of writing, and likely to recover. (Since this was written the patient has completely recovered.)

Diseases of the chest come next, and this class gave three admissions, 1 from bronchitis, 1 from pulmonary consumption, and 1 from pleurisy. The case of bronchitis was admitted a few days after the arrival of the detachment, and was due apparently to exposure on the march, and was the only instance of disease of the air passages I have observed during the season. The patient who had pulmonary consumption arrived here with the disease in an incipient stage, and his case does not appear to have any bearing on the climate of the station. The case of pleurisy occurred in a patient who had been some time in hospital for another disease, and, although a very severe attack, he made a complete recovery.

With regard to diseases of the chest generally, I think I may venture to state that, although there is probably a greater liability here to inflammatory attacks, such as pleurisy, from rapid changes of temperature, still that the admissions from diseases of the air passages, such as bronchitis, are likely to be infrequent, owing to the dry nature of the atmosphere.

Of rheumatic complaints, 2 cases only have been observed in 1871 and 1872, and as one of these was "gonorrheal," and the other man contracted his attack on the march from Sohagpore, it seems probable that the soldier stationed here is not liable to this class of disease, and the explanation of the immunity is doubtless to be found in the dry nature of the atmosphere.

The medical history of the Officers, Staff, non-commissioned officers, and their wives and families has been very similar to that of the men, and, with the exception of 1 Officer of the 79th Highlanders, in 1871, and the Station Staff Officer, who has lately arrived, all, including young infants, have suffered from fever, and three officers have been invalided to England from the same cause. One of these was sent home by the Medical Officer who preceded me, but I find he has recorded in the Case-book that the patient (a very young officer) was the subject of an enlarged spleen.† The other 2 were under my own observation, and during their stay here, their constitutions appeared to make no effort to shake off the fever from which they were constant sufferers, and one of them continued to have attacks of the disease for many months after reaching England. The other was the subject of enlarged liver as well; but, as he had been over 13 years in India, and contracted fever on the march from Saugor to Puchmurree, it is probable that the disabilities for which he was sent home were not altogether to be attributed to this climate.

The youngest infants did not escape the fever, but children a little older, although they suffered constantly on first arrival in '71, have enjoyed almost an immunity during the present season, and they have also been free from bowel complaints which are so liable to prove fatal in this class of Europeans in the plains.

Puchmurree considered as a Station for Healthy Troops.

From the experience of the two seasons during which it has been occupied, this question admits of an answer favourable to the station. The climate, in a

* Private Crouch, 44th Regiment.

† It is also stated that he had a rupture, but I am not aware whether this had anything to say to his being sent to England.

measure, assimilates the life of the soldier to what he has been accustomed to at home, and he escapes, except for about six weeks preceding the monsoon, and even then to a great extent, the depressing influences of tropical heat. He also escapes from the many diseases which are due to the latter cause, such as ardent fever and heat apoplexy, and thus not only from two potent causes of death in India, but also from the numerous diseases of the nervous system which follow attacks of the latter disease, and from which the most hopeless cases are sent home as invalids.

He is certainly exposed here to the constant prevalence of malarious fevers and this class of diseases, particularly in the young soldiers of the 44th Regiment, has been sufficient to keep up a high sick average; but, on the other hand, and again in favour of the station as a permanent one for healthy troops, it is to be recollected that the disease is of a mild type, and productive of no mortality.

Dysentery is another disease to which the European resident is liable and in 1871, the proportion of deaths to attacks from this cause was very high; but, as the Medical Officer under whose care the cases were was of opinion that the disease was scorbutic, and due to want of variety in the vegetable ration, that type of the disease might be looked upon as preventible, and on this account should not militate against the station. My own experience here would seem to confirm this opinion as, although a certain number of cases of dysentery have come under my treatment which have not been free from danger, I have seen nothing in their symptoms to indicate unsuccessful to the station from this disease, and, before leaving the subject of bowel complaints, I may mention that the station, unlike those in the Himalayas, enjoys an immunity from what is known as "hill diarrhoea" and also from the fatal bowel complaints of children.

Diseases of the liver prevail here—probably it would be more correct to say that the station does not enjoy an immunity from hepatic diseases—and, as far as the small number of cases have enabled me to judge, it would appear that the disease runs the same course it does in any other part of India—viz., the majority of cases get well, while not a few terminate in abscess.

The next subject for consideration is the scorbutic condition of the gums which has been observable during the occupation. In 1871 it prevailed very extensively amongst the men of the 79th Highlanders, and at the date of writing it is observable, but in a much milder form, in about every third man of the detachment, 44th Regiment. With regard to the cause of this disease, it was attributed in 1871, as before stated, to a want of variety in the vegetable ration; and as there is yet insufficient means of varying this part of the diet (no vegetables except potatoes being grown in the station), it is probable that the same cause has been productive of the same condition this year, but whether it is likely to be a permanent characteristic of the climate can only be proved by more extended observations.

It will be seen from the above that the station possesses many advantages over those in the plains in India as a residence for ordinary troops, and some disadvantages, but as there are others on both sides of this question which cannot well be considered under the heading of medical experiences, I beg to place them in the following form:—

Advantages.

(1.) It possesses, for the most part of the year, a climate temperate enough to assimilate, to a great extent the life of the soldier to what he has been accustomed at home.

(2.) Owing to the comparatively low temperature, he escapes from ardent fevers, heat apoplexy, and the other diseases due to heat, and thus from some of the great causes of death and invaliding in India.

Disadvantages.

(1.) The constant prevalence of malarious fevers, of a mild type generally, but occasionally of sufficient severity to produce the characteristic poisoning of this disease, while the frequency of attacks keeps up a higher sick average.

(2.) The prevalence of scurvy of the gums, but, as before mentioned, a more extended experience is required upon this point.

(3.) Owing to the same condition of or reduced temperature, he makes a quicker recovery, and convalescence from climatic diseases than he would be likely to do from the same class of diseases in the plains.

(4.) His chance of recovery when attacked with climatic and inflammatory diseases is greater, and apparently from the same cause.

(5.) The yearly rate of mortality, from all causes, here is likely to be infinitesimal when compared with the death-rate of the plains.

(6.) Young soldiers appear to come to a higher state of development in this climate, or, in other words, appear to grow better than in the plains.

(7.) The station, unlike those in the Himalayas, enjoys an immunity from what is known as "hill diarrhoea," "rheumatism," and the breaking out of secondary syphilitic diseases.

(8.) The advantages to be derived from an abundant supply of good water.

(9.) An abundant supply of grass, which produces a good beef ration for the troops.

(3.) The probability of a severe monsoon season, as 1871, when the rain was so continuous as to make the men discontented, and to interfere seriously with military and other out-door exercises.

Puchimurree considered as a Sanitarium for Invalids.

I regret that I cannot answer this question so fully as may be desired, but my inability arises from not having had suitable invalids upon whose disabilities the effects of the climate could be observed. As already mentioned, 20 convalescents were sent here from Kamptee with the 79th Detachment in 1871, but as no medical histories were sent with them to shew the diseases from which they had suffered in the plains, no opinion of any value can be offered as to the preservative or other effects of this climate upon them.* Two men of the 1/19th party from Saugor were sent here in 1871, suffering from enlargement of the liver; and one of them died from abscess, and the other, during seven months' residence, was not benefited, and left for England with this organ extremely enlarged.

The experience of the present year would seem to corroborate what was gained in 1871 as regards hepatic diseases, as the man of the 44th Regiment who has been already alluded to as having been sent here in March last with enlarged liver has since been three times, or 77 days, in hospital with the same disease. He has never been fit for duty; and at the date of writing (November 8th), in addition to the enlarged liver from which he still suffers, he is pale and anæmic, and will have to be brought before the Annual Invaliding Committee with a view to his being sent to England for change of climate. It is not attempted to express a condemnatory opinion from this limited experience; but, although doubtless the station would be suitable for such cases as debility, dyspepsia, and other minor diseases due to tropical heat, still, when the amount of fever here is recollected, and that it is in this disease so much benefit is derived from removal to higher altitudes, it would appear unreasonable to expect any great result from a change to this climate.

* I have previously stated, in a report written for the information of His Excellency the Commander-in-Chief, that the greater number of these 20 men had suffered from fever at Kamptee, but I think they should not be looked upon as the "invalids" who are sent yearly to Hill Sanatoria, as that party from the 79th Highlanders in 1871 was sent to Wellington in the Neilgherries.

Such an opinion, however, is only speculative in the present young state of the station, and would no doubt be much modified by-and-by if the place were brought into conformity with the settlements of civilized men by drainage, jungle-clearing, and moderate cultivation.

Causes of Disease at Puchmurree.

This question resolves itself into—What are the causes of the malarious fevers which prevail here? as they are the only diseases which appear to have an important bearing upon the success of the station. Many scientific theories have lately been brought forward to account for malaria, and of which instances might be furnished from here, such as the presence of iron in the soil,* the constant changing of the level of the subsoil water,† and the extensive prevalence of fungus diseases in plants and animals;‡ but the following would appear to be the more practical causes of this unknown condition at Puchmurree, and I shall conclude this report with a discussion of them and the means that appear to be necessary for their removal:—

1. The extensive prevalence of undrained land in the station.
2. The extensive prevalence of uncleared jungle in the station and in the ravines which surround it.
3. The presence of marshes in the valleys which immediately bound the plateau, and from which funnel-shaped ravines (the best-known of these is called the Gai Mookh) lead into the station.
4. The presence of decaying vegetation, especially in the late autumnal months.
5. The vicissitudes of climate.

Regarding the first of these causes, it may appear a little curious to anyone unacquainted with the station, or to anyone who may visit the station in the dry season, to hear it described as undrained; but the question becomes very easy to understand if it be recollected that instead of a plateau, as it is generally called, Puchmurree is really a large basin into which the drainage of a range of hills sinks and finds an outlet.

In the monsoon season this undrained condition of the soil becomes very apparent, and at that time of the year the two great valleys which I have formerly described as constituting the basin, as well as the smaller valleys through which the drainage of the hills finds its way to the “Bungungah,” assumes a marshy condition, and water is then found throughout them on a level with the surface. In support of this statement, I may mention that in 1871, before any improvements had been made, the water in the cantonment wells was exactly equal with the surface, and was so described week after week in the returns which were furnished to the Sanitary Commissioner, Central Provinces.

During the present year, at the recommendation of the writer, a number of surface drains were cut through the centre of the valleys which lie more immediately near the barracks and station, and two of these cuts were carried close to the above wells; but although they prevented the valleys becoming marshy, as was the case in the previous monsoon season, that they did not materially assist in removing water from the soil may be seen in the following return of the height of the water level taken on the 23 September 1872.

No. of well.	Distance from surface of ground to surface of water.		Remarks.
	ft.	in.	
No. 1, opposite site of Hospital Barrack .. }	2	1	Comparatively little water is drawn from this well. The supply for the barracks, hospital, and for some of the private houses is drawn from this well.
No. 2, opposite No. 4 Barrack }	4	3	

* Sir Ranald Martin.

† Numerous writers.

‡ Staff Assistant Surgeon H. Massy and others.

From the remarks and returns it will be observed that the soil, although a sandy one, does not rapidly free itself from water, or, in other words, becomes water-logged during the monsoon season in the valleys and hollows; and that such soils are malarious, and continue to be so until they are drained, is now generally recognised. Drainage on a large scale is therefore recommended.

The condition of the subsoil (or, rather, of the sandstone rock, which for the most part represents that structure here) has already been referred to as retaining water throughout the year; and this arises apparently from two causes: firstly, from the drainage of the hills which surround the basin, passing through it towards the watercourses in the centre of the valleys; and, secondly, from numerous veins of rock which cross the course of these streams and to a great extent interfere with their outflow once the dry season commences.

A structure of this nature which does not rapidly free itself from the rain-water which it absorbs in the monsoon season, and from the drainage which is poured into it from higher levels, is generally looked upon as a source of malaria, although the soil above it may be dry and porous; but the condition, no doubt, would be a very difficult one to deal with here. I believe, however, that a great improvement might be effected were the rainfall speedily removed by large surface drains through the centre of all the converging valleys, and the quantity of water which soaks into the soil in the monsoon lessened; and, secondly, if the outflow of the Bungungah was quickened by the removal of the numerous obstructions which make its waters stagnant in many parts of its course.

The necessity for the removal of the second cause of malarious disease I have mentioned—viz., “trees and undergrowth in unusual numbers,” is very apparent, as they attract the malaria which is generated by the soil and prevent its diffusion and spread by the atmosphere. The removal of such a recognised cause of disease as this will probably be only a question of time; and in recommending it I do not wish to be understood to advocate the destruction of any of the useful or ornamental woods, such as the Hurra, Mowah, Jamin, Beherah, Siriss, Semul, &c.; but as there are great numbers of trees which do not admit of the above terms being applied to them, and are for the most part stunted and diseased growth, such as the Saj, Aoula, Tendoo, and dwarf date, I think their removal would add to the beauty as well as to the healthiness of the station. The localities where such a sanitary improvement would be advisable would be carried out by the authorities for the time being according to requirement, but there is one place which I would beg strongly to bring to notice as urgently requiring it—viz., the ravines which skirt the barracks on the eastern front, as I have invariably observed that when the wind blew for any time from this point during the past season there has been an increase in the admissions into hospital from malarious fevers.

The expense of such a sanitary improvement is apparently the greatest objection to it; but upon this point, although perhaps not within my province, I would venture to suggest that it might be carried out by fatigue parties of the men, as I believe the more physical exercise the soldier takes in this climate, provided he is not exposed to the midday sun in the hot weather or the rains during the monsoon season, the higher state of health he enjoys.

With regard to the third cause of malarious disease—viz., “marshes in the ‘surrounding ravines,’” I may mention that such conditions exist on three sides of the plateau, and that funnel-shaped communications lead from those swamps to its edges. It is thus possible for malaria generated in these marshes to reach the station; but, as their surface area is not large, it would appear that no serious danger is to be apprehended from them, and should they be proved to be a source of disease after the sanitary state of the station was improved, their drainage could be very easily effected.

The fourth cause of malaria—viz., “decaying vegetation in the autumnal months,” would be impossible to remove with the present limited population of the hill; but, doubtless, if the station became a large one, the increased herds of cattle necessary for the maintenance of a large body of troops would contribute much to reduce this cause of disease by keeping down the present luxuriant growth of grass.

The “vicissitudes of climate,” which I have enumerated as the fifth,

although probably not a cause of malaria, are no doubt accountable for the development of a certain number of attacks of fever in men who are predisposed; and it appears reasonable to think that a great deal may be done towards reducing the admissions into hospital from this cause by precautionary measures directed to the conditions of the climate, such as confining the soldier to barracks in the middle of the day in the hot weather; making him change his clothes when wet in the monsoon season; altering his clothing as may be necessary during the other seasons of the year, and reducing the temperature of his barrack-room in the hot season by the erection of a properly-constructed roof.

Since the above was written most of the sanitary recommendations set forth in it have, I believe, been carried out, and with, I have been informed, results satisfactory to the invalid residents .

PUGHMURREE,

October, 1872

APPENDIX No. IV.

MEDICAL REPORT OF THE SUNGHIE-UJONG FIELD EXPEDITION
NOVEMBER 1874 TO MAY 1875.

By Surgeon J. McNAMARA, A.M.D.

ON the evening of Saturday, 21st November 1874, information was received by the Honourable the Lieut.-Governor of Malacca, from Mr. Pickering, who, at that time, was a Government agent with the Tunku Klana Putra of Sunghie-Ujong, to the effect that the Klana's house, in which Mr. Pickering resided, was threatened to be attacked by a large body of hostile Malays. The result of a consultation between the Lieut.-Governor and Major Stammers, who commands the troops at the station, was that 27 men of the Malacca Detachment 1st Battalion 10th Foot, were to be got in readiness to embark for Sunghie-Ujong on the following day. At this time, the Colonial Surgeon of Malacca was on leave; as I was, therefore, the only doctor at the station, it was decided that the Civil Apothecary should accompany the troops. On Sunday, the 22nd, I saw that the apothecary got together the medicines, surgical appliances, &c., that I considered necessary. I gave him a general heading of his duties, and requested him to furnish me with the fullest information as to the health, &c., of the men on every available opportunity.

I then inspected the men, looked at their kits, and found everything correct. Each man carried with him the usual white drill uniform, white helmet, forage cap, the red serge jacket, spare boots, socks, &c. The Colonial Government supplied each man with a flannel shirt and a pair of canvas boots; the latter were the more necessary as the October issue of boots had not arrived at the station. It was decided that the packs and blankets were to be carried for the men through the jungle. About 4 p.m. a small steamer was in readiness to convey the troops to Permattan Passir, a village on the Sunghie river, about 39 miles from Malacca, where the men were to disembark and continue the march through the jungle to Sunghie-Ujong, distant about 34 miles. The following detail paraded and embarked at the time mentioned above:—

Two Lieutenants and 27 men 1st Battalion 10th Foot; 30 Native Police, under the Acting Superintendent; the Civil Apothecary; the whole being under the command of Lieutenant Palmer, 1st Battalion 10th Foot. The Lieutenant-Governor and the Officer Commanding communicated with headquarters at Singapore by the mail of that day; the result of which was that on the following Wednesday morning H.M.S. "Charybdis" anchored in the Malacca Roads, having the Governor of the Straits Settlements and troops from Singapore on board.

Later in the day, about 2:30 p.m., I received a communication from the Senior Medical Officer of the Straits Settlements that I was to report myself to the Officer Commanding on board, and assume medical charge of the Expedition. The Colonial Surgeon having returned, I immediately set to work and made the best use I could of the short time at command, as I was ordered to embark at 5 p.m. I must add that his Excellency the Governor of the Straits Settlements, aware of the short notice I received, kindly sent intimation to me that he would give me up to the last moment—fully an hour after the time that others had to be on board—to report myself. Having ascertained that an orderly of the Army Hospital Corps was on board, I placed my serjeant, Army Hospital Corps, under orders to accompany me. I then got some medicines, surgical appliances and instruments, medical comforts, &c., together, and left

the Malacca pier in a steam-launch, with his Excellency the Governor, Captain Tatham, R.A., and a few other officers of the Expedition. Having reported myself on board, I ascertained that the following troops were to take part in the Expedition, under the command of Captain Tatham, R.A. :—

Royal Artillery—1 officer and 25 men ; 1st Battalion 10th Foot—2 Lieutenants and 54 men ; Control Department—1 Officer and 1 Serjeant, Army Service Corps ; Army Hospital Corps—1 non-commissioned officer and 1 orderly ; Medical Officer—Surgeon McNamara, A.M.D. Having weighed anchor, we found ourselves, on the following morning, 26th November, off Lookut Bay. After breakfast and sundry preparations, we disembarked at 9 A.M. ; being towed about 2½ miles up the Lookut, we arrived at a Malay village called after the river ; here our march through the jungle for Sunghie-Ujong—distant about 20 miles, was to commence.

A Naval Brigade, consisting of Lieut. Jones, Royal Navy, in command ; 3 officers and 56 men of the Royal Navy, together with 1 officer and 26 men of the Royal Marines, also landed ; Surgeon Gibson, Royal Navy, being in medical charge. Owing to the difficulty of obtaining coolies for the transport, a halt for the night had to be made here.

The basis of operations was established at this village, there being easy communication with H.M.S. "Charybdis," which anchored in the bay. The Control Officer remaining ; the guard being furnished by the Royal Marines. Sufficient accommodation not being procurable in houses, tents were pitched ; the scene soon became a busy one, preparations for dinner being carried on in a lively and energetic manner. It was here I saw, for the first time, what an amount of latent energy the British soldier can summon to his aid in providing for his bodily comforts. The day was fine, and everybody enjoyed the novelty.

On the morning of the 27th November we all turned out, preparing for an early start. Cocoa and biscuit were served out, and, anticipating a hard day's march through the jungle path, I administered ii gr. of quinine to each man ; we then awaited daylight and the arrival of the coolies. At 6 A.M., everything being ready, the "fall-in" sounded, and the march commenced. The men wore white clothes, helmets, gaiters, the blanket folded over the shoulder—containing a change of clothes—the rifle and 60 rounds of ammunition being also carried. The morning was fine, and, at first, the path was fair ; soon, however, rain came down with tropical force, altering the aspect of affairs. As we advanced, we found ourselves now wading knee-deep through marshes, then carefully walking in Indian file along the fallen trunk of a huge tree ; soon we saw that a large sheet of water had to be walked through ; then a stream to be crossed, wetting us halfway up the thigh ; a succession of these, with hills and valleys, through the dense monotonous jungle, brought us to our first station Banban, at 2.30 P.M., a distance which we thought at the time to be fully 20 miles, but which in reality was only 10. It rained, with little intermission, the whole time, and, needless to add, we were wet through in the first five minutes. During the march, Dr. Gibson was with the front ; I followed with the rear. The men of the Artillery had very hard work, as, owing to the scarcity of coolies, they had to render a good deal of assistance with the gun. During a halt, I noticed one of these men looking exhausted ; I questioned him ; he said he felt very tired. However, a little brandy-and-water revived him, and he resumed the march. At Banban, Dr. Gibson told me that a man of the 1st Battalion 10th Regiment also complained of exhaustion and a feeling of coldness. He continued the march after a little rest and a small quantity of quinine in rum. The stoppages caused by the heavy transport were very trying to the men. During the halt, under the friendly covering of a few old sheds, biscuits and preserved meat were served out cold—it being impossible to get a hot meal. The men washed their boots, feet, &c. ; the clothes were wrung to get some of the wet out of them. At the "fall-in," 4 P.M., I found that 5 men of the Royal Artillery were unable through exhaustion to resume the march. This did not surprise me, as I was an eye-witness to the great fatigue borne by them. They were left behind with orders to follow up early next morning. I gave them quinine, with instructions as to its administration.

All the other men falling in, the march was resumed. As we advanced, the rain ceased—the ground remaining very heavy ; numerous trunks of trees had

fallen across our path ; we soon, however, got into a more open country, and, as we heard the sound of numerous heavy guns some miles in front, the pace was quickened, and the men became more cheery. At night-fall we arrived at the compound of a friendly Malay Raja. Here we were housed comfortably ; dry clothes were put on to sleep in ; a meal of biscuits and preserved meat was given, and a full dose of quinine to each man ; everybody was soon afterwards asleep.

On the 28th we turned out early ; abundance of hot chocolate was made ; biscuits served out ; the men were ordered to dress in their yesterday's wet clothes, as it was then raining, and the path to be marched over was reported very deep and muddy—a fact that we soon ascertained for ourselves. Before marching I served out ii gr. quinine to each man. At 10 A.M. we arrived at Sunghie-Ujong—a distance of about 5 miles, met Lieutenant Palmer, and were informed that the enemy had fallen back on his most powerful stronghold—Kopayang. A large eight-roomed bungalow was assigned to us as quarters. I found a well of good water close by, and had a sentry put on it. I then gave directions how to make most use of the water—namely, that the water from the well itself was to be used for drinking and cooking, and the overflow was to be used for washing purposes ; fires were lighted, a bullock was killed, and everybody felt happy. Slight rain continued during the day.

About 11:30, I walked with some of the other officers to Ampangan, a mile and a-half further on, where the Tunku Klana lives. Here we found the Malacca Detachment quartered. I ascertained from the Officer commanding this detachment that having weighed anchor at 12 midnight on the 22nd November, they arrived off the mouth of the Sunghie river on the following morning, being conveyed up it in small boats ; about 9 miles from the mouth, they arrived at Permattan Passir at 3 P.M. ; here they were housed for the night. On the following morning they marched early, and, after a very hard day's work, arrived at Rantow that evening. There they found house-shelter for the night. On the following evening they arrived at Sunghie-Ujong. This was a far more difficult march than the one *via* Lookut, the distance being longer—swampy the greater part of the way. The men were several times waist-deep in mud and water. The apothecary had carried out all my instructions as to the halting grounds, the changing of clothes, administration of quinine, hot meals, &c., and judging from results, with very good effect. I heard several people declare that it was the worst path they ever saw. This detachment was supplied with three days' rations of bread, live fowls, &c. On examining the men I found that three of them were suffering from slight ague and diarrhoea, "but nothing to prevent us from going at the enemy, sir," as they said.

I returned to head-quarters, and found the men hard at work, some preparing food, others drying clothes, cleaning rifles, and examining the ammunition that had been under water, &c. About 1 P.M., the Malacca Detachment marched out to explore the enemy's stronghold at Kopayang, 3 miles from head-quarters. At 3:30 P.M., the "fall-in" was heard. The men were all fallen in, and advanced on Kopayang. Meeting the exploring party, we arrived opposite the stockade soon after 4 P.M. ; a few rockets were fired, but the range was too short to permit of their taking effect. The men were now thrown in skirmishing order, and getting as much shelter as possible from trunks of trees, mounds of earth, &c., a heavy fire was opened at about 300 yards. The enemy's heavy guns took no effect, as they were evidently levelled at some imaginary people on the trees behind us, the shots going high over our heads ; not so with the small-arms, however, as the whizz and dull thud of the bullets indicated much closer firing. One after the other of the enemy's cobos or redoubts was silenced. The darkness setting in, we had to retire for the night, after an hour's well-sustained fire ; as we were crossing a small opening, a stray bullet hit one of the Naval Brigade close to the spine ; the poor fellow died a few days after.

On the following day, Sunday, the 29th, the attack was not renewed, owing, I believe, to the receipt of some communication from his Excellency the Governor. Nothing of importance happened during the day.

On Monday, the 30th, we again marched for Kopayang, with everything in readiness for a good day ; but, to our surprise, the enemy had flown. We examined the fort, spiked guns, and burned all the houses. About 3:30 P.M. the men returned to dinner.

Tuesday, 1st December, we were unable to follow up the enemy owing to the want of a guide, we therefore had to content ourselves with collecting spoils, &c.—nothing of note occurred. The three following days were occupied in scouring the country in different directions, house shelter was always found at night; constant rain the whole time. After this work six men had to fall out—a few for want of boots; three more on account of slight fever and diarrhœa.

December 5th.—To-day we expected to be rewarded for all our disappointments on the previous days by coming up with the enemy in his last stronghold, Qualla-Labu, about 18 miles distant. An early fall-in was ordered; but, owing to the coolies not coming in time for the transport, we were unable to start as soon as we desired. The morning was fine, and, at 6.30 A.M., we marched (30 men in all). The path was good for some distance, we then had to cross a stream hip-deep; after this we found a very fair jungle-path, with hills and streams—most of the latter had to be waded, as, except a tree fall across the stream, the natives never think of making an artificial bridge, preferring, through laziness, and perhaps for cleanliness sake, to wade. At 3.30 P.M. we were within a mile of our destination. Here the path was the worst I ever saw—a regular buffalo walk, the mud being knee-deep and a very slippery bottom. It took us a good hour and a-half to get over about three-quarters of a mile of this path. We at last entered the large open compound, and doubled up to the different houses in succession; only two shots were fired at us; one of the enemy was killed; the place had been almost deserted. The darkness set in at the conclusion of our day's work; we then selected a comparatively comfortable house, a huge fire was lighted, hot cocoa and grog were served out, the men had dinner, and afterwards sleep.

The following day being Sunday, was proclaimed a day of rest; it was much wanted, as the men were very tired; a nice stream being close by, we all bathed; clothes were washed and afterwards dried at large fires, the sun not favouring us. In the afternoon, foraging parties set out, returning laden with fowls, and a hind-quarter of a buffalo that they shot. We had a capital feast, and retired early.

December 7th.—Prepared for the return journey at an early hour; found that one of the Naval Brigade, who injudiciously walked about in bare feet on the previous day, required to be carried in a stretcher—a sharp spike of bamboo having cut him in the foot; we burned all the houses before leaving. On arrival at one of the larger streams on the return journey, we found two ways of crossing—the one by means of the branching top of a large tree that had fallen across; the other more simple—namely, wading. Most of us chose the latter; those more adventurous, the former; among these was a sailor, who, some way or other, missed his footing, or a branch broke; however, he fell into the stream; one of the 1st Battalion 10th Regiment immediately shouted, “a man overboard—throw him a life buoy.” This little sally caused great merriment among the men. We arrived at head-quarters about 4 P.M., nothing worthy of recording having occurred. We were afterwards told that during our absence from Sunghie-Ujong, the Chinese were fighting among themselves. The next few days were occupied in quelling these disturbances and disarming the Chinese.

On the morning of the 9th, the first serious case of sickness appeared in one of the young soldiers from head-quarters at Singapore—namely, intermittent fever.

December 11th.—2 Lieutenants and 40 men of the 1st Battalion 10th Foot, 15 men Royal Artillery, together with the whole of the Naval Brigade, left for Singapore, *via* Lookut. The numbers remaining were—1 Captain, R.A., and 10 men; 2 Lieutenants 1st Battalion 10th Foot and 41 men (including the case of remittent fever left for treatment). I remained in medical charge. Nothing of note happened for several days; the men set to work making themselves more comfortable. Occasional reports were received that armed bands of Malays waylaid Chinese coolies on the different roads, robbing and murdering them; in such cases, about 20 soldiers would be sent to try and come up with the cowards, but never with success, the jungle being too dense.

On the morning of the 10th of January 1875, news was brought in, that a small village about 2½ miles off, was attacked by Malays; 24 of the men were

marched to the scene at daylight; we found that the Malays had retreated; we followed them up for about five miles through the jungle, when, at the extreme end of a long clearing, we saw the men were in quest of, running out of a house, and making for the jungle. Pursuit was given, and as they would not stand, they were fired upon, with the result of 1 wounded, 1 prisoner, and from marks of blood on the borders of the jungle, we concluded that some of the others carried lead with them. The wounded man, whom we brought with us, afforded me a very interesting case of gun-shot wound. The troops were called upon to make several journeys into the jungle on errands of this kind; a description of each would be of no interest. Little else occurred for some months after—the country becoming more settled. As I write, the month of June has arrived, and with it an Officer of the Army Medical Department to relieve me of the medical charge at Sunghie-Ujong.

Having given a general description of the Expedition, I will now consider each subject under a separate heading, adding a few notes about the country, the Malays, and their diseases.

The Malacca Detachment was, as I before stated, supplied with three days' rations of bread, live fowls, tea, sugar, &c.; it was intended to forward a further supply, should such be needed. When the head-quarters disembarked at Lookut, preserved meat, biscuit, preserved potatoes, rice, flour, and chocolate were supplied, all obtained from H.M.S. "Charybdis," of good quality—the chocolate, as served out in flat cakes, I consider as especially suitable, the mode of preparation being very simple—merely hot water, into which the chocolate reduced to powder, with a little sugar, is placed; after a few minutes it is served up, and proves very palatable. On arrival at Sunghie-Ujong, all the men got fresh bullock meat for a few days. The supply not being equal to the demand, this luxury had to be discontinued. Water-buffalo meat, as well as fresh pork, was occasionally given; the latter was too fat, the men not liking it on that account. Fowls formed the ration twice a fortnight. Owing to the nature of the campaign, the men at first had their principal meals daily as opportunity presented itself; hot chocolate and biscuits were issued early every morning, and, as a morning meal, could not, in my opinion, be improved upon. When matters became quiet, a ration, as per scale appended, was issued about the 3rd month; bread formed part of the scale—an enterprising Chinaman catering for our wants; we had tried to make bread previously in a hastily constructed field oven, but failed for want of yeast—the native tuivak or toddy refusing to ferment. It is worthy of remark that the chocolate, appreciated at first, did not find much favour afterwards, to be explained, I think, by the fact that the exertion being over, the large amount of albumen and fat contained in it were not required. The ration of rum will be noticed under the head of "Spirit ration." Lime-juice was served out with the salt meat on my recommendation; it formed a very agreeable drink in the proportion of one ounce of lime juice, half an ounce of sugar, and ten ounces of water, and by the men much appreciated during the heat of the day.

Ration Scale.

- a. $1\frac{1}{4}$ lbs. of fresh meat, 1 lb. salt, or 1 lb. preserved.
- b. 1 " bread, or 15 ozs. of biscuit.
- c. 1 " fresh, or 8 ozs. preserved vegetables.
- d. 2 ozs. of rice.
- e. $\frac{5}{8}$ oz. " tea, $1\frac{3}{4}$ oz. coffee, $1\frac{1}{2}$ oz. chocolate.
- f. $2\frac{1}{2}$ ozs. sugar.
- g. 1 oz. salt.
- h. $\frac{1}{2}$ gill of rum.
- i. $\frac{1}{2}$ oz. of pepper.

The Expedition started from Singapore and Malacca, no provision being made for a spirit ration; tea, coffee, and chocolate were to take its place. The Malacca men performed their journey to Sunghie-Ujong without spirits. When off Lookut, it was decided for the first time that a Naval Brigade be landed; then the difficulty arose. The Naval Officers stated that the blue jackets could never get on without their usual grog, and they decided to let them have it. The Officer commanding consulted with me, and we weighed the matter

R

thoroughly. It was decided that a ration should be given, but that we were forced to do it; the rum was accordingly landed. It was certainly a pity that we could not carry out the original intention. The Malacca men performed very hard work without spirits; the others could have done the same. Half a gill of rum formed the ration; it was always served out after the day's work. This ration was continued for a long time; however, when traffic on the Sunghie river was reopened, I suggested that porter could be sent up, and given instead of rum. The Control Department immediately sent some up the river, and greatly to the men's delight, as they preferred the porter to the rum. I may remark that the Control Officers were always most willing to carry out any suggestions. During our first two months' residence in Sunghie-Ujong no spirits—with the exception of a small quantity on arrival—were obtainable outside. The men were remarkably free from disease, and the conduct was all that could be desired, till one man of a more enquiring disposition than the others discovered the abode of his friend Bacchus, under the guise of arrack, in the Chinese village. He, of course, introduced his friends, and then numerous visits were made with usual results. An amusing incident occurred one day as we were all resting on our beds in the verandah—the thermometer standing at 80° F., with a damp atmosphere. One Officer, who was deeply absorbed in the "Field Service," by Sir G. Wolseley, read aloud for our instruction from Part II., page 172:—"It is an ascertained fact that alcohol of any sort reduces instead of increases the temperature of the body." The cooling effect of Commissariat rum was immediately tried. I am not prepared to give the result; some Officers holding that it was not a fair trial, the ration not being large enough.

Clothing.

As before stated, the Malacca Detachment carried with them the knapsack—containing boots, socks, flannel shirts, white drill clothes, cholera belts, &c. The tunics and any kit not required for the service were left behind; the men embarked in white helmets, red serge frocks and white trousers; the packs, blankets, &c., were carried for them through the jungle. The Officer commanding told me that the men marched from Permatan Passir to Sunghie-Ujong in helmets, flannel shirt sleeves, white trousers, carrying the rifle and 60 rounds of ammunition. This I afterwards found to be an excellent dress for jungle marching. The men from Singapore brought a similar kit; but, on arrival at Lookut, transport being scarce, they had to leave their packs, and fold a change of clothing in their blankets, which they carried in addition to the rifle and 60 rounds. It was unfortunate that transport could not be obtained for the packs, as then the clothing would be kept dry during the rain. It will be difficult to find a better dress than the wicker helmet with white cover as served out, the white drill suit, and occasionally the red serge frock, flannel shirt, and the regulation boots. The helmet kept its shape, and was uninjured by the rain; those made of pith get heavy, sodden, shrink, and lose shape. When the Expedition started from Singapore the October boots had not arrived, owing, I believe, to a break-down in the steamer; this was a pity, as marching through the jungle tested the boots severely—the old ones giving way at once, and left the men rather badly off. The long Wellingtons of the Artillery were rather a nuisance to the men, as when we crossed through water knee-deep the boots filled, and then on the opposite bank the knee had to be flexed to empty the water out. We had not a single case of foot-soreness throughout the marching. About the end of January one man wore boots without socks—these being very scarce, and made the first case of foot-sore. The gaiters were worn at first, but soon discarded, the lower ends of the white trousers tucked neatly inside the socks being much more comfortable. Flannel next the skin day and night forms a comfortable, healthy covering; cholera belts were worn throughout the campaign—each man having two; the proper time for wearing these is, in my opinion, when the body is at rest, after the day's work, and also in bed at night time. I don't think they are of much use when the circulation is kept up by exercise, as then a cool breeze can have no effect on the warm skin of the abdomen. It is when the body is at rest, the circulation calming down, the skin of the abdomen moist with perspiration, that a cool breeze, causing evaporation, produces a chill in that part of the body which is so liable to tropical diseases; it would be difficult to impress this on the soldier, therefore the best plan is to have him carry out the usual instructions.

The men from Malacca were provided with soda-water bottles, covered with canvas, having a shoulder-strap of the same material; these answered admirably. The Singapore men were unprovided with water-bottles. I believe that no regulation water-bottles were in store in the Straits. On board the "Charybdis" we collected as many soda-water bottles as possible; these not being liable to break, the men carried in their haversacks; all were filled with good water previous to disembarkation. During our march through the jungle, whenever suitable water was found, the bottles were refilled. The jungle was plentifully provided with nice clear streams; this was owing to the heavy rains preventing stagnation. On arrival at Sunghie-Ujong, a good well was found. A Malay man also pointed out another, about 100 yards distant, which I at first considered would answer for washing purposes; but it was close to a large Chinese village, the inhabitants of which bathed there, and as the *Tinea-Tonsurans*, or ring-worm, flourishes in most of their skins, I discarded the supply. The first-mentioned well being, then, the only one for use, the channel for the overflow was cleared, a small off-shoot as it were was made from this, in which the men were to wash the face and hands; lower down, provision was made for clothes washing. Some weeks afterwards we examined a large pond, about half a mile distant, and, through the energy of Lieutenant Peyton, of the 1st Battalion of the 10th Foot, and a fatigue party, a comfortable bathing-place was made, of which luxury the men availed themselves regularly. This frequent bathing had a great deal to do with the excellent health the troops enjoyed. Filters of sand and wood charcoal were made; though the water was not very good, I could attribute few diseases to it.

Water.

Houses of some description were found at the end of each day's march; tents were pitched at Lookut, the house accommodation not being sufficient—the ground being covered with tarpaulin. On arrival at Sunghie-Ujong, the Malacca Detachment was housed at Ampangon; the surrounding ground, though elevated, was badly drained, the surface water rendering it sodden. I was glad when we found accommodation for them at Seramban, when the main body marched back; to these damp surroundings, I attribute the slight diarrhoea and ague that appeared there.

Habitations.

At Seramban, the head-quarters, we found a good-sized bungalow, two-stories high, attap roof, with a verandah in front. It was 51 feet by 48, and divided into four rooms on each storey. When the strength of the troops was lessened, only the upper storey was used, the officers contenting themselves with the verandah. This house—built by chance for an Eurasian outlaw—was situated on the side of a small hill; on a lower level, the large Chinese village flourished. The men were allowed small superficial space, but the ventilation was good, everything being open. As many as nine officers lived in one end of the verandah, the other being used as a store. I have now lived for over six months in this verandah, surrounded by plenty of fresh air, but too much damp. To avoid putting on damp garments we used to sleep in our clothes of the following day.

When a large number of men were here, the cooking was carried on as best it could, the field cooking apparatus being used; when the number diminished, a small shed attached to the bungalow, originally built as a cook-house, was used. I condemned this on sanitary grounds, and, on my recommendation, a proper cook-house was built, about 20 yards off; an old cask, covered with clay and charred on the inside, was used for baking purposes.

Cooking.

On arrival at Sunghie-Ujong, a latrine trench was dug; this was carefully attended to, dry earth being thrown on daily. The trench, having a moveable attap roof, was changed occasionally; the path leading to it was kept dry and clear. At night, urine tubs were placed near the bungalow, and removed the first thing in the morning; surface drains were constructed around the bungalow to carry off rain-water; all refuse matter that could not be burned was buried in deep pits. As a large number of men were placed together in a bungalow that was not fitted up with any of our more modern systems of conservancy, I recommended that some disinfectant powder be supplied from Singapore. A large quantity of carbolic acid powder was accordingly forwarded, which we used with the best results.

Conservancy

The provisions, ammunition, packs, &c., were carried through the jungle by Chinese coolies. The small packages were carried on the shoulder, one

Transport.

being placed at either end of a neat flat piece of wood, or simply a piece of bamboo about 5 feet long ; the larger and heavier packages were tied to the centre of a long pole with 2 or 3 coolies arranged at either end after a fashion of which they are masters—the shoulder being always the part to bear the weight. The Chinaman has no idea of carrying a weight in the hands with a shoulder-strap, as our regulation stretcher would require of him, we had, therefore to make alterations to meet the circumstances ; this was done simply by getting two stout bamboos, about 12 feet long, run them through the sides of the canvas, connect, by two cross-pieces at the foot and head, 2 other shorter cross-pieces from the end of one pole to that of the other, so that they almost meet ; then the stretcher was carried safely on the shoulders of 2 coolies—sometimes 4 were required. In any future jungle expedition, where Chinese coolies would be used, I would suggest for the transport of men disabled through sore feet, minor injuries about the feet and hands, &c., &c., that a chair—on the plan of the “mountain chair,” so well known in Hong-Kong—be employed ; it would simply consist of 2 long poles made of some elastic wood, connected and almost meeting at the ends ; a fixed cross-piece, well padded, stretching from pole to pole just behind the middle, to act as support for the man's back ; in front of this, 2 short ropes would be let down from each pole to support a flat piece of timber, which would be the seat ; more in front two larger ropes, arranged in the same way, would support the foot-piece. In this chair a man could be easily carried through the jungle ; a cover could be put on. The centre of gravity would be lower than when the stretcher is carried on the shoulder ; and it must be remembered that to have one of the bearer's hands free to use a stick for steadiness, &c., is very necessary ; besides, I doubt if a stretcher could be carried in the hands for 18 or 20 miles without a large number of bearers. These chairs would be easily packed, and 2 coolies could carry six or eight of them when not in use ; they would also be useful for carrying other goods. The Dhoolie, on account of the long chains swinging too much for a jungle path, was unable to be used.

ABSTRACT of Diseases in the 1st Battalion 10th Regiment.

		1875.											
		1874.			January.			February.			March.		
		December.			Strength, 40.			Strength, 40.			Strength, 37.		
Diseases.		Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.
		Strength, 81.	Strength, 81.	Strength, 81.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 37.	Strength, 37.	Strength, 34.
		Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.
		Strength, 81.	Strength, 81.	Strength, 81.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 40.	Strength, 37.	Strength, 37.	Strength, 34.
1	Intermittent and remittent fever	1	0.4	0.4	1	0.4	0.4	1	0.5	0.5	1	0.3	0.3
2	Febricula ..	..	..	..	1	0.4	0.4	..	..	..	..	..	0.3
3	Digestive ..	..	..	..	2	0.2	0.2	..	..	..	2	..	0.8
4	Gonorrhoea ..	1	0.4	0.4	..	..	..	1	..	..	..	4	0.5
5	Syphilis, primary..	..	..	..	..	..	..	..	..	..	1	..	..
6	Skin diseases ..	..	..	..	..	..	..	1	0.3	0.3	..	..	..
7	Ear diseases ..	..	..	..	..	..	..	2	1.0	1.0	1	..	..
8	Wounds ..	1	0.4	0.4	..	..	..	1	0.3	0.3	..	..	..
9	Gunshot wounds..	..	..	..	..	..	..	..	..	..	..	..	..
10	Ulcer ..	..	..	..	..	..	..	2	1.0	1.0	3	..	0.3
11	Contusion ..	..	..	..	..	..	..	1	0.5	0.5	..	..	0.3
12	Sprain of foot ..	..	..	..	..	..	..	..	..	..	..	..	0.3
13	Poison ..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	3	1.2	1.2	4	1.4	1.4	5	3.5	3.5	7	6.3	2.5

Total Admissions, 34.

Diseases.

This abstract, though not strictly according to classification, gives a fair idea of the diseases suffered by the men of the 1st Battalion 10th Regiment :—

1. One was a case of remittent fever occurring in a young man aged 21. He was transferred to Singapore on 21st December, convalescent. The other two were cases of simple ague.

2. Of the digestive organs, most were simple diarrhoea; one was congestion of the liver; a good many of those men with diarrhoea have very long service in the Tropics, and, as is well known, diarrhoea is often brought on by simple irregularity of diet, afterwards assuming tropical characters. Many were readmissions.

3. The case of gonorrhoea occurring in December, was simply the result of a former attack, probably renewed by the unusual exertion he was called upon to perform. This being mild, I treated locally; the other was transferred to Singapore.

4. A mild case of a soft intra-urethral sore.

5. Two cases of tinea tonsurans, a very common disease in the China Command.

6. Two cases of inflammation of the membrana tympani, a very common disease in the Straits Settlements, brought on by sleeping in a draught. Some think it is due to washing in bad water, sea-air, &c.; but, after thorough investigation, I find the cold draught of air the cause—it is very liable to recurrence. Washing out the ear with warm water and dropping in a little vinum opii, to be kept in by means of cotton wool, is a certain remedy.

7. Two were scalp—one from a blow while on picquet, the other from a fall; the third a cut in the hand from a broken plate.

8. The case of gunshot wound was accidental, happening to a man while out shooting with a fowling-piece—(a number of which we took from the Chinese); the shot entered the inner side of the arm. The man was transferred to Singapore, where he is doing well.

9. The diseases under this head happened from different causes—two from an abrasion, one from a boil, one from wearing boots without socks, one from wearing tight new boots on guard, &c.

10. A bruise on the shoulder from a fall.

Royal
Artillery.

In the month of February, one officer was attacked with dysentery, at first mild, but afterwards of a severe type—great abdominal pain, tenesmus and irritability of the stomach being leading features. I advised this officer most strongly to leave for Singapore without delay, as the abode in a verandah, with only salt and preserved meats and no bread, formed by no means favourable surroundings in sickness of his description. He delayed from time to time, as he was then Acting Resident, till the rigors of liver abscess set in, when he left for Singapore, from whence he was afterwards invalided to England.

Abstract of Diseases in the Royal Artillery.

		1875.																	
		1874.			January.			February.			March.			April.			May.		
		December.			Strength, 10.			Strength, 10.			Strength, 10.			Strength, 10.			Strength, 7.		
Diseases.		Strength, 25.			Average Weekly Remaining.			Average Weekly Remaining.			Average Weekly Remaining.			Average Weekly Remaining.			Average Weekly Remaining.		
		Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.	Admitted.	Died.	Average Weekly Remaining.
1	Gonorrhoea	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
2	Conjunctivitis	..	..	..	..	..	..	..	..	..	1	..	0.3	..	..	..	..	..	..
3	Ulcer	..	..	..	1	..	0.3	2	..	0.8	..	..	0.8	..	..	..	2	..	0.5
4	Boils	..	..	..	..	..	..	..	..	..	1	..	0.5	1	..	0.3	..	..	..
5	Contusion..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	0.3	..	..	..
6	Wound	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Total		..	..	..	1	..	0.3	3	..	0.8	2	..	1.6	2	..	0.6	3	..	0.5

Total Admissions, 11.

1. This case of gonorrhœa had the usual cause—the Chinese villages in this part of the world not being behind the time in civilization.

2. A case of simple conjunctivitis from glare.

3. Of the ulcers, one resulted from wearing boots without socks (all the socks being worn out), one from an abrasion, one from a boil. The men being fond of walking about the barracks in bare feet was a great cause of this disease, the ground not being cleared thoroughly.

4. From climate, causing a readmission.

5. Due to a fall while jumping.

6. A fall.

Sunghie-Ujong—meaning the end of a river—is an inland province of the Malayan Peninsula, north-west of Malacca, from which it is distant about 60 miles as the crow flies. The Sunghie river, arising in the territory and running a devious course of about 50 miles, connects it with the sea. A jungle-path extends from Lookut—a small village about three miles up a river of the same name, to Sunghie-Ujong; also a path from Permattan-Passir; numerous paths lead to the surrounding native states. The Tunku-Klana, who is the ruler, has very faint ideas of his boundaries. About the centre of the province exists a large clearing about 6 miles long by 3 broad; even here, in isolated patches, jungle of a low description abounds. This is the seat of government—the Klana residing at Ampangon, where there is a large native village. Seramban and Rassa are Chinese villages—the space between the three representing a triangle—a village being at each angle. The Malays also live throughout the country in small clearings, where a few houses together are called Tampat. The population is estimated at about 2,000 Malays and 11,000 Chinese; hills covered with trees to the very top almost surround this central spot. The beautiful range of the Rambow Mountains is to the east and north about 10 miles distant; all kind of vegetation is abundant; in the places bared of jungle, the high lalang grass (*Andropayan caricosum*) flourishes; only small quantities of padi, or rice, are cultivated; the Chinese grow the sweet potato (*Convolvulus batatas*), as also different species of yams, sugar-cane, &c. The jungle abounds in various kinds of tropical trees—the daroo, tampenes, kamooning, marabon, &c.; the most useful of the smaller growth are the bamboo, the attap palm, the rattan creeper (*Calamus ratany*); the fruit trees are the cocoa-nut, the banana (*Musa Paradisiaca*), the durian, mangoosteen, pineapple, &c.

The soil contains the principal wealth of the place in the shape of tin, which is plentifully found in the alluvial earth by scraping and washing. This forms the attraction for the numerous Chinese. Small quantities of gold are occasionally found.

The climate differs but little from that of Singapore or Malacca; perhaps on account of its inland position the two seasons of wet and dry are more marked. The average daily temperature throughout the year would be about 80° F. The nights are comparatively cool—the extensive vegetation preventing the soil from absorbing the heat from the sun's rays during the day. November and December are the wet months; the north-east monsoon prevailing at that time, it was certainly very wet when we were marching, the sun not being visible for six days. The sun is very powerful in March, May, and June. On the whole, the climate is a beautiful one for the indolent natives; but for the thin-skulled, brain-worked, beer-loving European, the Mata-ari (eye of the day), as the Malays call the sun, is much too near a neighbour.

There is no doubt whatever that the dense jungle affords homes for numerous kinds of wild animals. The tigers abound; a few rhinoceros. Others are the deer, the civet cat, apes, monkeys, &c. Among reptiles, the iguana and turtle are indigenous. Of snakes, the boaconstrictor, the cobras, and other poisonous and harmless kinds abound. The alligators infest the mouths of the rivers.

The Malay is in stature small, dark-complexioned, and generally of a forbidding cast of countenance; he is about as useless a man as ever lived; has wives in proportion to his means; chews siri all day long; lives upon rice and fruit, and tries to extort money from the hard-working Celestial.

The diseases from which he suffers are few—malarial fevers, diarrhœa,

dysentery, ophthalmia, and ulcers. Their Tukang-Ubat, or doctors, judging from results, are by no means ornaments to the noble profession to which they aspire; men worn to a thread by ague, having consumed large quantities of their medicine, come to me and get immediate relief from a little quinine. The filth forced down the throats of dysentery cases causes an immediate change—for the worse. In a village one man died, and two others were supposed to be following his example. I was asked to see them. I found the two men to be suffering from dysentery; ordered their food to be changed to bread, chicken soup, and weak tea, instead of rice and curry and muddy river-water. I gave each man a bolus of 30 gr. ipecac. and a mixture of quinine, ii. gr. catechu, and ii. gr. doses of ipecac. every four hours; hot fomentations and flannel to the abdomen; made them change their rooms; in two or three days the motions were reduced from 30 to 5; blood disappeared. They were well in 10 days. I then made the people of the village change their water supply. No other case has since been reported from that village. Dysentery.

Ophthalmia is almost confined to those living in the larger villages; the glare from the bare soil and walls is the principal cause; it is pitiable to see the number of people whose corneas have been riddled with ulcers—staphyloma and blindness resulting. One or two men came to me with the disease in its early stage; bathing the eyes in warm water, drops from a solution of ii. gr. cupri. sulph. to ʒi. of water, remaining indoors, &c., had the happiest results. My first patient was very much pleased: on going away he asked me for more medicine. I said, "Your eyes are now well; no more is required." "Yes, sir," he said, "but I have plenty friends, and I should like to keep that medicine in the house." I was afterwards besieged by a lot of poor blind people, who wanted me to restore their sight. Certainly the cleanliness and the mild astringent surprised the natives in their results. The ulcers generally occur on the legs from poor nourishment. I should say it is next to impossible to cure them without proper dietetic treatment, and I certainly gained no reputation whatever in that direction. Small-pox has occasionally committed extensive ravages, whole households being carried off. I have seen exactly the same thing occur outside the boundary of our Malacca territory; but never within, where the blessings of vaccination are extended to the poor. Ophthalmia.

Badoola Hamman, of uncertain age—perhaps 30, a thin wiry-looking individual, remembers to have been troubled with little sickness till the morning of the 10th January, when he received three Snider bullet wounds. In the first wound, the bullet passed from behind, through the deltoid muscle, downwards, forwards, and inwards, making its exit about two inches from entrance and passing about one inch below the acromion process. The second bullet entered the fleshy gluteal region on the right side, four inches below and behind the crest of the ilium, and two inches behind the great trochanter, having tunnelled under the skin from right to left, with a slightly upward direction, for about four inches and a-half; the bullet made its wound of exit three and a-half inches long, two broad, and one and a-half deep. The third bullet entered the outer side of the thigh, two inches above and behind the right-angle of the patella, and lodged. On placing the man in the two positions in which he received the wounds, I found that the shoulder-joint was uninjured—that the femur was not broken. I could not detect this bullet (No. 3) with my finger or probe. I concluded that the bullet entered the bone and remained there, and I determined to wait. I had the man well fed, prescribed morphia to relieve pain, thereby causing sleep, applied water-dressing to all the wounds, freed them from discharges twice daily, using weak carbolic water-lotion when there was any offensive smell. This continued for several weeks, the man being in a most wretched condition. The shoulder and gluteal wounds were healing nicely. The thigh-wound gave out an offensive discharge from its canal. On several days I spent a long time manipulating and probing this sinus in all directions watching where the discharge seemed to come from; but was unable to discover the bullet till the morning of the 10th March, two months from time of admission. The swelling and inflammation of the femur having subsided I discovered the locality of the bullet, slightly moveable on the bone. That afternoon, with the assistance of my orderly, I administered chloroform and extracted it from its position, about four inches higher, and slightly more posterior than Ulcers.

the original entrance orifice ; the sinus soon ceased to discharge, and the man walked a mile and a-half to see me in three weeks.

The points of interest in this case are—first, the enormous amount of loss of tissue in the several wounds recovered from ; secondly, the direction of the thigh-wound bullet, and its not making its exit, though on receipt the man was not more distant than 60 yards. On examining the bullet, and taking into account the track of the sinus, I concluded that the ball must have ricochet before striking the thigh ; but what stopped the bullet I cannot understand, as a ricochet bullet loses none of its force.

[The Medical Reports on other portions of the military force engaged in the Malayan Expedition were not received in time for publication in the present volume.]

APPENDIX No. V.

EXTRACT FROM MEDICO-TOPOGRAPHICAL REPORT FOR
NOWGONG, BUNDELCUND.

By Surgeon J. B. HANNAH, M.D., Army Medical Department.

"THE diseases from which the largest number of admissions take place in Nowgong are fever, principally of an intermittent form. This, in the case of the Detachment 63rd Regiment, is most severe in September, October, and November. December, also, has a large number of cases, but less than the other three months. The cause of this fever during the three months after the rains is probably owing to the power the "black soil" has of absorbing and retaining moisture for a considerable period. I have examined the records for the past four years, two of which the 106th Regiment occupied the barracks in the old cantonments, and the other two the 63rd Regiment occupied these new barracks. The first are built on the "laterate" soil, and, as I mentioned, these new barracks are built on the black cotton soil. No comparison exists as regards the buildings, as the former are merely converted stables, and the latter as fine barracks as it is possible to build, with the men sleeping on the upper stories. The number of admissions into hospital, however, taken monthly, show a very marked difference in favour of the old site as regards fevers. The average strength of the two detachments has been so nearly alike that it may be left out of consideration. In 1872 the 106th Regiment had, in September (the month when the rains begin to lessen) nine admissions from "fever" (I use that word to signify only ague and mild remittent), the 63rd Regiment 35 admissions. In October (a month in this part of India tolerably dry) the 106th Regiment had seven admissions, the Detachment 63rd Regiment no less than 53. In November, the admissions from the 106th Regiment were again seven, the Detachment 63rd Regiment 33. In December, they were 14 and 22 respectively. I can only think this enormous difference must be due to the surrounding soil. In the firm laterate soil of the old cantonments the water drains away very rapidly after a rainfall, but in these new barracks it remains soft and moist for days. In every other respect the Detachment 63rd Regiment was advantageously placed, as the 106th Regiment had a number of fever cases sent from Jhansi for change, whereas the 63rd Regiment had none. In the former detachment, too, every man was either in hospital or at duty, but in the latter, on account of want of hospital space, it was impossible to keep every ague case in, and many men were under treatment several days without being shown in the returns.

In the Artillery barracks, on the same soil, and immediately adjoining these blocks, the same thing existed; almost every man was under treatment during those months with ague, and the officers in medical charge administered quinine to a large number daily.

The same difference in the number of admissions from fever is observable in the second year of each detachment, and although the total number of admissions in the 63rd hospital is less, it is, for 10 months in the year, much higher than the 106th; and leaving out the last two months, November and December, from the table of the 63rd Regiment, there are 120 admissions to 83 for the 106th, and the average strength of that detachment was seven more than the 63rd. The year 1875 was considered exceptionally hot, and the rain was late in setting in; but, on the other hand, it was heavier, so that it may be fairly inferred there was no great difference. In 1874-75, the same month (October) shows the highest number of admissions, but the men of the 106th

Regiment appear to have felt the winter months more. This may be accounted for by their barracks being very cold, with large trees close to them on every side; whereas the new barracks are entirely devoid of trees near them, and the men of the 106th Regiment were also older soldiers, who had been much longer in the country, and were consequently less able to resist the high diurnal range of 20° and 31° F. of January and February. A few degrees more cold, and I have always found half-a-dozen men waiting for treatment the following morning at the hospital with ague, especially if they had suffered from it before, and contracted it during the rains."

TABLE of admissions from fevers in the 106th Regiment at Nowgong, Bundelcund, for the years 1872 and 1873.

Old Barracks, Converted Stables.

Month.	1872.		1873.		Remarks.
	Average Strength, 164.		Average Strength, 162.		
	Admitted.		Admitted.		
January	15		11		
February	16		15		
March	12		6		
April	9		5		
May.. ..	12		2		
June	9		4		
July.. ..	10		3		
August	9		10		
September	9		10		
October	7		17		
November	7		Marched.		
December	14		—		
Total	129		83		

TABLE of admissions from fevers in the 63rd Regiment, at Nowgong, Bundelcund, for the years 1874 and 1875.

New "Standard Plan" Barracks.

Month.	1874.		1875.		Remarks.
	Average Strength, 170.		Average Strength, 155.		
	Admitted.		Admitted.		
January	1		12		
February	1		4		
March	6		1		
April	15		3		
May.. ..	12		7		
June	3		12		
July.. ..	3		20		
August	20		6		
September	35		24		
October	53		31		
November	33		14		
December	22		10		
Total	204		144		

APPENDIX No. VI.

ANDAMAN ISLANDS.

(The following observations are extracted from the "Medico-Topographical Report of Port Blair and the Andaman Islands, by Surgeon-Major HODDER, M.B., Army Medical Department. Some Notes on these Islands, by Surgeon DOUGLAS, V.C., M.D., will be found in the Volume of Reports for 1873.)

WITH the exception of a considerable variety of birds, there is a great deficiency of animal life; wild pigs and wild cats are nearly all that are known or believed to exist. The swallow which makes the edible nest, and a great variety of wild pigeons, are found. Insects, lizards, and snakes are common.

Owing to reports brought by mariners that the inhabitants of these islands are cannibals, and the fact that up to a few years ago they murdered any stranger who was unfortunate enough to fall into their hands, the Andamanese have caused much curiosity and attention. They have been reported deformed and hideous in appearance, but in these particulars accounts have been somewhat exaggerated. In height they vary from 4 ft. 9 in. to 5 ft. 1 in.; they are extremely black—more so than the African negro, and some of them have a dull leaden hue, like that of a black-leaded stove. They are not deformed; but seem to be very well made, except as to height, and they are supple and active when they wish. They indignantly deny being cannibals, and ask why, when they can get plenty of food, they should eat men.

Their origin has puzzled ethnologists, but they certainly have many characteristics of the African—namely, scanty woolly hair and flat features, though by no means so flat as the negro; the thick lips and long heel of the latter are much less prominent. In appearance they resemble the Seedee boys of the East Coast of Africa more than any other race I have seen; they are fond of dancing, and have a strong sense of the ridiculous, which is so well marked in the African. They are exceedingly passionate, and aroused by trifles, and their appearance is then diabolical. This great irritability is manifested as much between themselves as if the offence comes from a different race. Origin doubtful.

Their number is estimated at about 5,000; but as no means of obtaining correct information on this point presents itself, it is of course only a guess. Those living near the settlements—estimated at 400—are divided into tribes, seldom above 30 strong; each tribe has its own territory which, when interfered with by others, used to cause war. Characteristics.

Their dwellings are most primitive, and are merely composed of palm leaves and branches loosely put together. They make no permanent huts, as do the natives of the Little Andamans and Nicobars. Huts.

They do not appear to entertain any religious belief; but believe the spirit of a departed relative has power to do them harm; they consequently take means to appease it, such as leaving water near the grave for the spirit to drink if thirsty, or placing the body on a raised platform, and lighting a fire near. No religion.

During late years what are called "homes" have been established for the Andamanese; they are large bamboo sheds in which those people who wish to come in from the jungles put up; the people come and go at will. On the first establishment of the penal settlement here, and for some years after, the natives caused much trouble by murdering the convicts, and taking their irons for arrow-heads, whilst they were at work clearing the jungle. They used to come even into the different stations and rob or murder. Gradually those near found it to their advantage to cease these depredations, and now—probably within a radius of 10 or 15 miles from the Settlement—none of the tribes Customs.

would be likely to attack stragglers without reason, though it is highly probable that it would be by no means safe for Europeans or others to go beyond this except in sufficient numbers, and with arms for protection. They realize the idea I had formed of true savages, and would seem to be almost untameable, for, notwithstanding all the advantages—such as getting food without trouble, clothing, and shelter—they receive in this settlement, all those on Ross Island ran away to the jungle only a few months ago, but were given up by the chief of their tribe; probably some of them had been a long time in the settlement. In the jungles, the men are absolutely naked; but the women twist fibres up, into ropes, which they allow to hang down in front and behind to half-way down the thigh; this is their only covering. Those located in the settlement are sometimes induced to wear a pair of drawers, which they immediately throw off when they proceed to fish or hunt. They cover their bodies with a red earth, and the mode in which it is applied shews whether it is put on as ornament, to prevent sickness, or as a sign of mourning. As ornaments, they wear strings of their ancestors' bones round their necks, or a skull slung in a basket over their backs. At an early age the elders begin to tattoo the bodies of the young ones; the operation is commenced as soon as the boys begin to swim, and the process is carried on at intervals till adult age, by which time the body is tolerably well covered with small straight scars; near the settlements the operation is now done with a piece of glass, and with this they also shave their heads, with the exception of a narrow streak from the crown to the nape of the neck. These operations were probably done with flint or stone previous to the advent of bottles into their domains. They rarely have eyebrows, beard, moustache, or whiskers, and few eyelashes. They are very fond of liquor and smoking; and it is said that it was by means of the latter that a hold was got on those close to the settlement—they took so to it that a want (which they had not before) was created, and they came in for tobacco.

As soon as a man can support a wife he marries. The youth who is a candidate eats a certain kind of ray-fish which gives him the appellation of "Goo-mo," or "bachelor desirous of marrying." The girls who are marriageable wear a certain kind of flower, so that some of the difficulties which occur in civilized life are avoided. The ceremony consists in the pair about to be married sitting down apart from the others, and staring at one another in silence; towards evening, the girl's father or guardian joins the hands of the pair, and they then retire, and live alone in the jungle for some days. There appears to be great mortality amongst children, few parents rear more than one or two, and three brought up is considered a wonderful thing amongst them.

The Andamanese, so far as known, are short-lived, and not healthy; few appear to pass 40 years of age; they suffer from fever, bowel complaints, and lung diseases, it is said; and they are easily affected by the sun and cold winds. They know no remedy but painting the body with red earth.

They are by no means deficient in intelligence, and many of them have picked up Hindustani, so as to speak it well.

Their own language, I understand, consists of few words, and these sound harsh and explosive, and consists principally of monosyllables.

When a man dies, he is quickly buried, and the tribe leaves its place for about a month. They cord the corpse with fibre, and place it in a half-sitting attitude in a shallow grave, about two feet deep; the face is placed to the rising sun. Before filling in the grave, each of the others takes a last look, and gently blows on the face and forehead of the corpse. At certain periods, varying from four to six months, the nearest of kin to deceased returns and takes away some of the bones.

They shoot fish with extraordinary accuracy, with bows and arrows. I have seen them hit a small fish—at a foot or more deep—with perfect aim; they also spear fish, with a spear attached to a long bamboo; they poise the pole from a height, and then jump with it. They shoot the wild pigs with arrows, and catch turtle. Their amusements appear to be few—dancing, a monotonous song, and the music of a rough skin drum, which they play by stamping on it with their feet, appear to be the chief.

Canoes, bows and arrows, spears, nets, &c., are all they make, and these are necessary to supply them with their daily food. They make no provision of food for anticipated hard times.

In April 1875 the Superintendent of these Settlements, on his tour to the Nicobars, visited the Little Andaman on the way, and, having obtained leave of absence, I accompanied him. The object of the visit was to try and make friends with the natives, who are the most untameable and unfriendly savages in the whole chain of islands. As we penetrated further into the island, by means of a creek, than anyone is known to have done, it may not be out of place to say a very few words here on what we saw. The island is distant from Port Blair about 60 miles to the south, between lat. $10^{\circ} 25'$ and $10^{\circ} 50'$ north and long. $92^{\circ} 26'$ and $92^{\circ} 50'$ east; it is 28 miles long and about 20 broad. The whole coast line which we saw (a considerable portion) is low, with sandy shore; but in some places low rocks rise abruptly to a height of 20 or 30 feet; a heavy surf, even in calm weather, appears constantly to beat the shore, and this appears to have led to many of the murders committed by the natives on strangers, by either upsetting the boats near the shore whilst attempting to land, or by preventing those who had landed getting off when attacked by the natives. A low range of hills occupies a portion of the centre of the island.

Little Andaman Island.

Our party entered a creek at the north-western part of the island, the mouth of which is about one-eighth of a mile wide, and spent most of the day exploring this creek and its branches; its course appears to be nearly north, and it apparently comes from the low hills seen in the distance; it is fringed with mangrove trees to the water's edge, and the scenery consequently is very monotonous. We saw nothing of the inhabitants this day, but found a few of their log canoes tied to the trees on the bank. We went inland a distance of seven or eight miles.

No animals were seen, but a few birds; and up one branch of the creek we disturbed an enormous number of large bats (flying foxes), which flew in thousands over our heads, screeching, and darting about quite bewildered.

Animal life.

The natives of this island have always had a character for ferocity greater than those of any of the other islands, and they appear to deserve it. Both their northern neighbours and those of the Nicobars hold them in dread. Numerous instances are known of most cold-blooded murders committed by them on people who have landed in ignorance of their character, or who have been shipwrecked on the island; and it is highly probable that many of the crews of Burmese junks cruising about for cocoa-nuts have fallen victims to these savages, by innocently landing, or through their vessels being wrecked and nothing ever again been heard of them. Last year a small expedition from Port Blair was sent to punish them for an offence of this kind; a small party of Madras Sepoys landed where the murders were committed, and, notwithstanding their firearms, the natives fought with their bows and arrows from the edge of the jungle, and succeeded in wounding two of the soldiers. For the sake of those unfortunate enough to be wrecked amongst them, therefore, it would be highly desirable to have the natives friendly, for now, unless well armed, it would be almost certain death to land. So presents of pigs, cloth, and iron were left on the shore for them. A party of about 20 of the Port Blair Andamanese, from the "homes," were brought, and in the morning we again landed. The Andamanese were sent into the jungle to see if they could find any natives and make friends. After penetrating some distance, they came on a party, and were immediately attacked. They had been told not to fight, unless they could not avoid it; but were at length obliged, in self defence, to use their bows, and mortally wounded one of the natives; and so great is the strength of their bows that a large blunt barbed arrow completely pierced the thigh, wounding the profunda femoris. We afterwards got the wounded man alive, but whilst taking him on board the steamer he died. The skeleton has been cleaned, and sent by General Stewart, C.B., the Superintendent, to his uncle Sir Ranald Martin, I believe, to be presented to one of the museums in London. The natives are evidently the same race as those of the Great Andamans, though neither understands a word of the language spoken by the other. More attempts were made to conciliate them by presents of cocoa-nuts thrown into the water, and also a pig, which swam towards shore, and, when within range, was immediately shot with arrows; but all attempts failed; even after accepting the presents, they waded into the water, and attempted to get a flight of arrows into the boats. Many of them could have been killed, as they

Inhabitants.

were within 80 yards; but as any violence would have made matters worse, of course they were not fired on, as it was not necessary in self-defence.

Huts.

They build huts of much superior description to their northern neighbours, and they used to build them on the sandy beach, but, as they found their huts proved a guide to expeditions sent to punish them for misdeeds, they removed them, and now, I believe, no houses are to be seen anywhere from the sea.

Nicobars.

From the Little Andaman, a distance of about 50 miles south brought us to Car Nicobar, where the total difference in the appearance of the island and the inhabitants is strange; the latter are brown-skinned, straight-haired, inoffensive, and even cowardly.

Treatment of leprosy by the gurjon oil.

Whilst speaking of the diseases of convicts, I wish to mention two novel modes of treatment which, through the kindness of Dr. Dougall, Madras Medical Service, Senior Medical Officer, Port Blair and Nicobars, I have been able to see, and, though not connected with the European detachment, I think should not be omitted in a report of this kind. The first relates to the treatment of leprosy by gurjon oil—the oleo resin obtained from the *dipterocarpus levis*, which grows abundantly all over these islands and in Burmah. When Dr. Dougall first visited the Leper Ward in March 1873, he found 24 patients, many in a wretched state with ulcers, portions of toes gone, anæsthesia, and all symptoms of leprosy clearly defined. He was much impressed with their wretched state, and, after thinking the matter over for a while, decided to use the gurjon oil—1 part to 10 of cocoa-nut oil, as an external application. This was begun on the 23rd May 1873 on all the lepers, their bodies being rubbed *all over* with the oil. In June, the proportions were altered to 1 to 5 repetitively, and shortly after the gurjon oil was ordered internally also, in 6-drop doses, and gradually increased to 60 drops. In July, Dr. Dougall noticed that the lepers were improving in appearance, and gaining flesh, and the sores were beginning to heal. He then photographed them for future comparison. The first notable improvements were the healing of ulcers and gradual diminution of the anæsthesia. Not satisfied with the way the gurjon and cocoa-nut oils mixed, Dr. Dougall in trying various vehicles, hit on lime-water, and found that this and the gurjon oil, in the respective quantities of 3 and 1, and violently agitated, formed a substance like soft butter, and this he named “gurjon oil ointment”; it is smooth, and no pain follows its application to the healthy skin; at the same time, he made an emulsion of equal parts of the oil and lime-water, for internal use, in half-ounce doses, morning and evening. The following is now the plan of treatment adopted. The lepers turn out at daylight, go to a stream, thoroughly wash themselves, using powdered earth as a detergent; they then return to their ward, receive their dose of emulsion, and then rub their *whole body* with the ointment; this process should continue two hours, and they are supervised during this time; no limit is placed on the quantity of ointment. At 3 P.M., the dose is repeated, and the rubbing process again gone through for two hours. Dr. Dougall attributes much good to the prolonged rubbing, not only on account of the physical exercise it entails, but the mental occupation it supplies. The emulsion acts as a laxative and diuretic. Twenty-four lepers have been treated, and in every case decided benefit has resulted; every ulcer has healed, and anæsthesia is markedly removed, and tubercles have softened and disappeared. Through the above treatment, men who for years have only dragged on a miserable existence, are now able and willing to work, and the healed sores show no tendency to reopen. No change whatever was made in their diet, which was and is bad.

Plan of treatment in detail.

Treatment of ulcers by dry earth.

The second mode of treatment referred to is that of ulcers by dry earth in a powdered state. Many of the convicts who work at the clearings are so saturated with and weakened by malaria, that the slightest scratch inflames and sloughs, leaving a large, foul-smelling, brown, unhealthy-looking ulcer. Dr. Dougall has treated such cases, with the best result, by means of dry earth. The ulcer is washed, and then the powdered earth, to the depth of about an inch is placed directly on it and a little over the margins; moist sheets of paper are placed over this, and a bandage over all, and left for 24 hours; the earth is then washed off, by means of a stream of water, and fresh earth applied. Some smarting results, as the earth seems to act as a stimulant as well as a deodorant. Very soon the brown surface disappears, and all smell is at once removed, and healthy granulations spring up. As soon as this takes

place the ulcer is dressed with carbolic acid lotion, and heals quickly. Dr. Dougall has treated very large numbers in this manner, and is entirely satisfied with it. I might mention that whilst serving in the West Indies in 1868, I treated several large ulcers in the groin, the result of syphilis in soldiers of a West India regiment, with dry earth, and considered that the ulcers rapidly cleansed under the treatment. I had no opportunity of carrying it out except in a few cases.

APPENDIX

Abstract of Results of Meteorological Observations taken at

GIBRALTAR.

Lat. 36° 6' N.

Month.			Readings of the Barometer.			Temperature of the Air.							Mean Daily Readings of			
			Mean reduced and corrected to 32°.	Highest reduced and corrected to 32°.	Lowest reduced and corrected to 32°.	Highest during Month.	Lowest during Month.	Range during Month.	Mean				Maximum in Sun's rays.	Minimum on Grass.	Hygrometer.	
									Of all the highest.	Of all the lowest.	Daily Range.	Approximate Temperature.			Dry Bulb.	Wet Bulb.
January	...	...	50.103	30.384	29.808	67.0	48.0	19.0	61.3	53.3	8.0	57.3	77.2	51.4	57.7	53.8
February	...	...	30.136	30.442	29.833	71.6	45.0	26.6	64.7	53.7	11.0	59.2	98.9	49.6	58.7	53.7
March	...	...	30.119	30.303	29.924	75.2	48.0	27.2	63.4	54.4	9.0	58.9	100.4	51.8	58.7	53.3
April	...	...	29.985	30.243	29.552	76.2	49.4	26.8	68.3	57.9	10.4	63.1	116.1	54.8	62.9	56.9
May	...	...	29.920	30.145	29.740	80.6	57.0	23.6	73.2	62.6	10.6	67.9	128.1	58.8	67.0	59.9
June	...	...	29.999	30.146	29.813	87.0	63.0	24.0	80.5	69.3	11.2	74.9	135.3	64.5	73.2	65.4
July	...	...	29.962	30.128	29.843	92.0	68.8	23.2	84.8	73.0	11.8	78.9	139.4	70.6	78.4	70.2
August	...	...	29.951	30.096	29.811	91.0	70.2	20.8	84.6	72.2	11.8	78.7	134.2	70.6	78.2	71.3
September	...	...	29.989	30.230	29.823	88.0	67.0	21.0	81.6	70.6	11.0	76.1	126.7	66.5	74.6	64.7
October	...	...	29.998	30.214	29.628	81.0	56.0	25.0	72.8	64.0	8.8	68.4	107.5	61.0	68.0	62.5
November	...	...	30.004	30.219	29.663	75.4	48.0	27.4	67.9	56.3	11.6	62.1	89.8	52.8	61.8	56.7
December	...	...	29.969	30.396	29.455	66.8	39.4	27.4	59.6	47.8	11.8	53.7	80.5	44.6	53.6	48.8
Yearly Sums, Means, and Totals	...	...	30.011	30.245	29.741	79.3	55.0	24.3	71.9	61.3	10.6	66.6	111.2	58.1	66.1	59.8

MALTA.

Lat. 35° 55' N.

January ...	29.472	30.293	29.415	65.4	43.0	22.4	59.3	52.1	7.2	55.7	104.8	45.8	57.0	52.7
February ...	29.964	30.397	29.631	65.0	41.4	23.6	67.8	49.4	8.4	53.6	113.0	43.4	55.3	50.3
March ...	29.969	30.225	29.513	65.6	42.0	23.6	58.5	49.3	9.2	53.9	117.5	41.0	55.7	50.6
April ...	29.794	30.094	29.257	73.0	51.0	22.0	66.1	56.3	9.8	61.2	125.8	...	63.7	58.4
May ...	29.793	30.178	29.449	83.0	53.8	29.2	69.0	59.6	9.4	64.3	126.5	...	66.3	60.6
June ...	29.926	30.198	29.770	97.8	59.8	38.0	83.4	71.2	12.2	77.3	137.3	...	79.4	74.7
July ...	29.866	30.017	29.668	91.6	68.2	23.4	84.6	74.0	10.6	79.3	139.1	...	81.6	73.4
August ...	29.850	29.991	29.658	93.0	68.8	24.2	83.1	72.1	11.0	77.6	137.3	...	79.6	72.5
September ...	29.969	30.179	29.760	85.2	60.0	25.2	81.2	72.0	9.2	76.6	139.2	...	79.0	71.9
October ...	29.917	30.034	29.777	82.6	59.0	23.6	76.7	68.3	8.4	72.5	146.0	...	74.4	67.4
November*	...	...	...	73.0	51.0	22.0	66.6	57.8	8.8	62.2	114.9	...	64.2	58.1
December*	...	...	...	70.2	46.0	24.2	62.9	54.9	8.0	58.9	109.1	...	60.2	54.3
Yearly Sums, Means, and Totals ...	29.851	30.160	29.590	78.8	54.4	24.4	70.8	61.4	9.4	66.1	125.9	...	68.0	62.1

SCUTARI.

Lat. 41° 0' N.

January ...	30.107	30.316	29.508	56.2	25.8	30.4	46.2	34.8	11.4	40.5	70.8	27.8	41.5	39.2
February ...	30.015	30.481	29.651	62.0	15.6	46.4	46.0	32.6	13.4	39.3	76.6	26.4	40.4	37.6
March ...	30.033	30.478	29.690	64.6	17.0	47.6	47.0	33.6	13.4	40.3	88.6	27.0	41.3	38.2
April ...	29.901	30.168	29.546	79.8	33.6	46.2	65.6	42.2	20.4	55.4	113.5	38.5	58.4	52.5
May ...	29.784	30.042	29.444	88.0	43.0	45.0	71.0	52.4	18.6	61.7	118.9	43.8	64.2	57.9
June ...	29.912	30.203	29.643	93.4	51.8	41.6	80.8	58.6	22.2	69.7	128.2	50.2	73.3	66.5
July ...	29.848	30.086	29.580	93.6	59.0	34.6	86.4	62.6	23.8	74.5	136.4	54.3	79.0	69.4
August ...	29.803	30.035	29.687	93.0	57.6	35.4	88.4	65.0	23.4	76.7	139.2	56.9	81.1	69.9
September ...	30.010	30.252	29.858	89.8	55.6	34.2	83.0	59.0	24.0	71.0	132.1	51.6	75.6	65.7
October ...	30.033	30.337	29.729	83.0	46.0	37.0	72.3	54.9	17.4	63.6	109.4	47.5	66.7	60.1
November ...	29.854	30.240	29.973	75.0	38.0	37.0	60.7	48.9	11.8	54.8	82.7	42.0	56.8	52.8
December ...	29.854	30.145	29.477	68.4	42.0	26.4	59.6	48.2	11.4	53.9	84.0	40.7	54.9	51.2
Yearly Sums, Means, and Totals ...	29.929	30.232	29.565	78.9	40.4	38.5	67.2	49.6	17.6	58.4	106.7	42.1	61.1	55.1

Summary of Results of Meteorological Observations

Stations.														
Gibraltar ... 50 feet	30.011	30.442	29.445	92.0	39.4	52.6	71.9	61.3	10.6	66.6	111.2	58.1	66.1	59.8
Malta ... 111 "	29.851	30.397	29.257	97.8	42.0	55.8	70.8	61.4	9.4	66.1	125.9	...	68.0	62.1
Scutari ... 60 "	29.929	30.481	28.973	93.6	15.6	78.0	67.2	49.6	17.6	58.4	106.7	42.1	61.1	55.1

* Barometrical observations for 10 months only.

No. VII.

Stations in the Mediterranean, in the Year 1874.

Long 5° 20' W. Height above Sea 50 feet.

Hygrometrical Results from Glaisher's Tables (5th edition).										Atmospherical Conditions.													
Mean Temperature of Dew Point.	Mean elastic Force of Vapour.		In a Cubic Foot of Air.		Mean Degree of Humidity.		Mean Weight of Cubic Foot of Air.		Number of Days for mean Direction of Wind.				Number of calm, or nearly calm, Days.	Calculated from Robinson's Anemometer.		Amount of Cloud 0—10.	Ozone Scale 0—10.	Number of Days on which Rain fell.	Amount of Rain fall.		Latitude.	Longitude.	
	Mean Weight of Vapour.	Mean additional Weight required for Saturation.	Mean Degree of Humidity.	Mean Weight of Cubic Foot of Air.	North.	East.	South.	West.	Mean daily pres- sure of Wind.	Mean daily Hori- zontal Movement of the Air.	On the Ground.	Feet above the Ground.											
50.3	.365	4.1	1.3	76.3	538.1	8.50	17.00	1.75	3.75	0.00	...	...	...	...	7.4	6.5	9	4.38	4.11	...	...
49.3	.351	3.9	1.6	71.0	537.7	4.50	6.25	2.50	14.75	0.00	...	...	...	...	4.5	6.2	5	0.97	0.80	...	...
48.5	.341	3.8	1.7	69.0	537.5	3.25	24.50	0.00	3.25	0.00	...	...	...	...	6.1	6.4	6	6.04	5.74	...	...
51.8	.386	4.3	2.1	67.9	530.4	7.25	10.25	0.25	12.25	0.00	...	...	...	...	6.4	6.4	6	0.97	0.84	...	...
54.2	.421	4.7	2.6	63.6	525.1	6.25	6.50	1.25	17.00	0.00	...	...	...	...	3.8	6.4	6	1.01	0.87	...	...
59.6	.513	5.5	3.3	63.0	519.8	0.75	10.25	2.75	16.25	0.00	...	...	...	...	2.2	6.1	1	0.15	0.13	...	...
64.5	.607	6.5	3.9	62.6	513.4	3.00	9.75	8.75	9.50	0.00	...	...	...	...	2.0	6.2	0	0.00	0.00	...	...
66.5	.651	7.0	3.4	67.6	513.2	0.50	18.25	1.00	10.75	0.50	...	...	...	...	3.1	6.4	1	0.55	0.54	...	...
57.5	.476	5.1	4.1	55.3	518.6	6.25	11.00	2.75	9.50	0.50	133.5	3.7	6.6	1	0.09	0.09	
58.2	.485	5.3	2.4	70.5	525.0	5.50	10.00	5.25	10.25	0.00	147.7	5.7	6.9	5	1.19	1.09	
52.3	.393	4.3	1.8	71.5	531.8	7.25	8.75	3.25	10.75	0.00	132.8	4.7	7.1	4	0.80	0.76	
44.1	.289	3.3	1.3	70.0	540.5	9.50	1.25	4.25	16.00	0.00	3.5	7.0	7	2.87	2.72	
54.7	.440	4.8	2.5	67.4	527.6	62.50	133.75	33.75	134.00	1.00	...	...	...	...	4.3	6.5	51	19.02	17.69	...	...

Long. 14° 30' E. Height above Sea 111 feet.

48.7	.344	3.8	1.4	73.5	527.9	11.25	11.25	3.50	5.00	0.00	...	...	...	181.3	7.0	4.0	15	5.56	...	...	...	...	...
45.6	.309	3.5	1.5	70.0	538.5	9.00	5.00	4.50	9.50	0.00	...	...	...	...	...	155.4	5.5	4.5	12	1.25	...	...	...
45.8	.311	3.5	1.5	69.5	538.1	13.25	7.00	3.50	7.25	0.00	...	...	...	...	...	138.9	6.0	4.0	14	6.81	...	...	...
34.0	.418	4.6	1.9	71.2	526.1	9.25	4.75	5.75	9.75	0.50	...	...	...	...	...	105.6	4.0	4.5	1	0.08	...	...	...
56.0	.449	4.9	2.1	69.8	523.4	10.50	6.50	4.50	9.50	0.00	...	...	...	...	...	136.2	4.0	5.0	5	0.29	...	...	...
71.5	.773	8.3	2.5	76.9	510.8	11.25	7.50	1.75	7.50	2.00	...	...	...	...	...	66.3	0.7	2.5	0	0.00	...	...	...
67.9	.673	7.3	4.2	63.8	508.4	14.00	4.75	1.50	9.25	1.50	...	...	...	...	...	45.7	1.0	3.5	2	1.13	...	...	...
67.6	.677	7.3	3.6	66.6	510.1	11.25	7.50	3.00	7.25	2.00	...	...	...	...	...	57.1	2.0	3.5	1	0.05	...	...	...
67.0	.662	7.2	3.4	66.6	512.8	8.75	10.25	4.50	4.50	2.00	...	...	...	...	...	00.0	3.0	3.5	0	0.00	...	...	...
62.3	.562	6.1	3.1	66.0	516.9	9.25	11.50	5.00	4.75	0.50	...	...	...	...	...	00.0	5.0	7.5	9	8.31	...	...	...
53.0	.403	4.5	2.1	65.7	...	9.50	6.00	3.25	9.75	1.50	...	...	...	...	...	00.0	6.0	3.5	18	7.05	...	...	...
49.1	.349	3.9	2.0	66.7	...	7.75	4.50	7.75	11.00	0.00	...	...	...	...	...	00.0	6.0	3.5	11	2.16	...	...	...
57.4	.495	5.4	2.4	68.9	521.3	125.00	86.50	48.50	95.00	10.00	...	...	...	...	...	110.8*	4.2	4.1	88	32.69	...	...	...

Long. 29° 3' E. Height above Sea 60 feet.

36.3	.215	2.5	0.6	82.5	556.8	12.00	10.50	3.50	4.00	1.00	...	...	...	206.0	6.0	6.3	15	2.42	2.01	...	...
34.0	.196	2.3	0.7	78.4	556.2	8.50	11.50	5.00	3.00	0.00	...	...	...	210.2	7.2	6.9	17	4.25	2.59	...	...
34.3	.198	2.3	0.7	76.9	555.6	11.25	6.25	8.50	4.00	0.50	...	...	...	202.3	6.9	7.5	16	4.22	1.13	...	...
47.2	.326	3.7	1.8	66.9	534.0	9.25	5.50	8.25	4.50	1.50	...	...	...	158.3	4.4	5.6	4	1.50	1.39	...	...
52.7	.393	4.4	2.2	65.8	525.5	5.50	2.75	11.50	10.75	0.50	...	...	...	154.2	5.1	5.7	10	1.63	1.39	...	...
61.5	.547	5.9	2.9	66.8	518.0	10.50	6.75	7.00	5.25	0.00	...	...	...	124.3	3.1	5.0	4	0.75	0.70	...	...
62.8	.572	6.2	4.4	57.2	511.3	15.00	11.50	1.75	2.75	0.00	...	...	...	154.2	2.2	4.6	1	0.08	0.08	...	...
62.4	.562	6.0	5.4	52.4	508.5	18.00	10.75	3.25	3.50	0.00	...	...	...	152.4	2.3	4.7	0	0.00	0.00	...	...
58.6	.494	5.3	4.2	55.3	517.7	14.50	12.00	1.25	1.25	0.50	...	...	...	161.0	2.6	5.6	2	0.23	0.22	...	...
54.8	.429	4.8	2.4	65.7	527.2	14.25	8.50	6.00	2.25	0.00	...	...	...	143.3	5.5	6.1	10	1.50	1.36	...	...
49.2	.350	4.0	1.2	75.8	534.7	8.25	7.00	9.00	4.75	1.00	...	...	...	187.8	7.2	6.1	19	3.75	3.24	...	...
47.7	.329	3.8	1.1	75.8	536.7	3.00	7.25	13.25	7.00	0.50	...	...	...	232.5	6.1	5.7	15	4.44	3.74	...	...
50.1	.385	4.3	2.3	68.3	531.8	125.00	100.25	78.25	53.00	5.50	...	...	...	173.9	4.9	5.8	113	24.77	17.85	...	...
362 days only.																					

362 days only.

taken at Mediterranean Stations in 1874.

54.7	.440	4.8	2.5	67.4	527.6	62.50	133.75	33.75	134.00	1.00	...	...	...	4.3	6.5	51	19.02	...	36	6 N.	5 20 W.
57.4	.495	5.4	2.4	68.9	521.3	125.00	86.50	48.50	95.00	10.00	...	...	...	110.8	4.2	4.1	88	32.69	...	35	53. E.
50.1	.385	4.3	2.3	68.3	531.8	125.00	100.25	78.25	53.00	5.50	...	...	...	173.9	4.9	5.8	113	24.77	...	41	0. E.

* 8 Months only.

Appendix

Abstract of Results of Meteorological Observations

HALIFAX, NOVA SCOTIA.

Lat. 44° 39' N.

Month.	Readings of the Barometer.			Temperature of the Air.							Mean Daily Readings of			
	Me. n. reduced and corrected to 32°.	Highest reduced and corrected to 32°.	Lowest reduced and corrected to 32°.	Highest during Month.	Lowest during Month.	Range during Month.	Mean				Maximum in Sun's rays.	Minimum on Grass.	Hygrometer.	
							Of all the highest.	Of all the lowest.	Daily Range.	Approximate Temperature.			Dry Bulb.	Wet Bulb.
January ...	29.945	30.570	29.270	52.3	-15.7	68.0	36.0	17.2	18.8	26.6	64.9	14.9	28.1	27.1
February ...	29.791	30.457	28.561	47.2	-12.3	59.5	29.8	10.0	19.8	19.9	75.9	8.1	22.2	20.9
March ...	29.601	30.252	28.835	51.1	-10.6	61.7	42.4	19.8	22.6	31.1	94.0	17.7	33.9	31.6
April ...	29.740	30.155	29.074	58.0	2.5	55.5	44.2	21.8	33.0	49.0	94.0	20.4	36.4	33.9
May ...	29.720	30.111	29.197	79.8	25.6	54.2	63.0	35.0	33.0	49.0	117.3	29.5	54.4	48.2
June ...	29.696	30.126	29.233	78.6	32.2	46.4	65.6	42.4	33.0	54.0	110.4	39.8	56.7	53.0
July ...	29.825	30.078	29.480	87.0	39.0	48.0	76.5	49.5	27.0	63.0	125.3	45.4	66.6	61.4
August ...	29.798	30.131	29.416	82.2	40.1	42.1	73.6	49.2	24.4	61.4	121.6	46.8	65.7	61.1
September ...	29.887	30.315	29.209	79.4	36.7	42.7	68.8	46.2	22.6	57.5	112.5	41.8	60.9	57.1
October ...	29.822	30.393	29.187	71.3	24.4	46.9	61.0	37.8	23.2	49.4	104.3	32.4	52.8	49.1
November ...	29.867	30.568	28.975	59.6	11.3	48.3	46.2	26.6	19.6	36.4	81.1	21.6	38.7	36.0
December ...	29.800	30.448	29.055	52.7	-6.4	59.1	36.0	16.6	19.4	26.3	62.7	15.6	28.0	27.0
Yearly Sums, Means, and Totals ...	29.791	30.296	29.149	67.1	13.9	53.2	53.6	31.0	22.6	42.3	97.0	27.9	45.4	42.2

BARBADOES.

Lat. 13° 4' N.

January ...	29.972	30.099	29.892	88.5	64.0	24.5	85.4	70.9	14.5	78.2	141.3	68.3	80.9	72.7
February ...	30.016	30.252	29.918	87.1	69.0	18.1	85.5	71.7	13.8	78.6	141.6	68.1	81.6	72.1
March ...	...	...	...	89.8	65.0	24.8	86.7	71.3	15.4	79.0	141.6	68.0	82.5	72.9
April ...	...	...	...	89.8	63.0	26.8	88.0	72.8	15.2	80.4	141.6	69.2	83.2	73.6
May ...	...	...	...	90.0	72.2	17.8	87.8	74.2	13.6	81.0	142.5	71.0	83.9	74.8
June ...	...	...	...	89.8	72.6	17.2	88.1	75.1	13.0	81.6	137.2	71.7	83.6	75.2
July ...	29.084	29.151	28.983	89.6	71.2	18.4	87.0	74.4	12.6	80.7	134.3	72.3	83.0	76.7
August ...	29.454	30.028	28.967	90.0	70.6	19.4	87.6	74.0	13.6	80.8	128.5	69.0	83.6	77.2
September* ...	29.885	30.007	29.859	90.0	71.2	18.8	88.0	74.2	13.8	81.1	129.7	72.0	79.6	77.6
October ...	...	...	...	90.0	70.6	19.4	88.0	74.0	14.0	81.0	129.6	71.5	83.4	77.2
November ...	...	...	...	90.0	67.0	23.0	88.0	72.8	15.2	80.4	122.7	70.0	83.2	75.7
December ...	...	...	...	88.4	67.0	21.4	86.8	71.8	15.0	79.8	121.9	67.8	81.9	73.4
Yearly Sums, Means, and Totals ...	...	...	...	89.4	68.6	20.8	87.2	73.1	14.1	80.1	134.4	69.9	82.4	74.9

NEWCASTLE, JAMAICA.

Lat. 18° 62' N.

January ...	...	...	...	84.0	33.0	51.0	75.7	52.1	23.6	63.9	135.8	47.7	69.1	63.3
February ...	...	...	...	80.0	42.0	38.0	75.0	46.2	28.8	60.6	138.9	44.3	69.3	63.2
March ...	...	...	...	86.0	39.0	47.0	80.1	46.1	34.0	63.1	143.3	46.6	71.2	64.6
April ...	...	...	...	88.0	38.0	50.0	80.6	47.6	33.0	64.1	139.0	49.7	72.3	66.4
May ...	...	...	...	89.0	46.0	43.0	79.0	49.8	29.2	64.4	142.3	50.2	72.2	69.1
June ...	...	...	...	...	...	...	82.8	50.8	32.0	66.8	135.9	49.1	75.0	73.2
July† ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August† ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September† ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October ...	26.357	26.690	25.722	83.5	44.0	39.5	78.0	48.0	30.0	63.0	136.8	47.9	69.9	66.4
November ...	26.205	26.444	25.106	85.5	50.0	35.5	77.4	53.8	23.6	65.6	133.0	53.7	71.9	66.4
December ...	26.308	26.428	26.180	85.0	50.0	35.0	76.0	54.2	21.8	65.1	134.0	53.7	68.3	62.1
Yearly Sums, Means, and Totals† ...	...	...	...	85.1	42.7	42.4	78.3	49.8	28.5	64.0	137.7	49.2	71.0	66.1

* From 1st to 18th Sept. only for Barometrical Observations.

† No Instruments in July, August, or September.

‡ The Means for 9 months only.

No. VII.—continued.

taken at Stations in North America and the West Indies, in the Year 1874.

Long. 63° 36' W. Height above Sea 175 feet.

Hygrometrical Results from Glaisher's Tables (5th edition).							Atmospherical Conditions.										
Mean Temperature of Dew Point.	Mean elastic Force of Vapour	In a Cubic Foot of Air.			Mean Weight of Cubic Foot of Air.	Number of Days for mean Direction of Wind.				Number of calm, or nearly calm, Days.	Calculated from Robinson's Anemometer.		Amount of Cloud 0—10.	Ozone Scale 0—10.	Number of Days on which Rain fell.	Amount of Rain fall.	
		Mean Weight of Vapour.	Mean additional Weight required for Saturation.	Mean Degree of Humidity.		North.	East.	South.	West.		Mean daily pres- sure of Wind.	Mean daily Hori- zontal Movement of the Air.				On the Ground.	Feet above the Ground.
22.9	.122	1.5	0.3	80.0	569.7	5.50	5.00	8.00	10.00	2.50	lbs. per sq. foot	Miles	7.8	2.3	20	6.94	...
12.4	.075	0.9	0.5	63.0	574.0	6.00	3.00	5.25	12.25	1.50	...	306.2	6.1	2.8	18	8.40	...
27.5	.160	1.8	0.5	76.8	556.2	7.25	0.75	4.25	15.75	3.00	...	333.9	5.4	2.5	12	3.69	...
30.3	.170	1.9	0.6	78.8	555.8	2.75	2.60	7.00	14.75	3.00	...	229.7	6.7	3.5	18	5.36	...
42.2	.268	3.0	1.8	63.4	535.6	9.75	2.00	9.00	9.75	0.50	...	285.6	5.6	3.6	11	4.57	...
49.6	.355	4.0	1.2	76.8	531.8	6.75	6.75	10.25	6.25	0.00	...	217.8	7.1	2.3	19	8.34	...
57.2	.470	5.2	2.0	72.6	523.4	4.50	3.25	11.75	11.00	0.50	...	150.1	5.9	2.4	11	2.37	...
57.3	.472	5.2	1.7	75.0	523.8	5.75	1.75	12.50	11.00	0.00	...	190.3	6.0	2.4	14	3.63	...
53.9	.414	4.6	1.3	78.1	530.5	9.00	4.50	9.50	7.00	0.00	...	222.7	6.1	2.1	12	5.14	...
45.4	.304	3.4	1.1	76.6	538.7	11.00	1.25	5.00	13.75	0.00	...	...	6.4	1.5	8	2.46	...
32.4	.184	2.1	0.6	78.8	555.0	10.25	1.00	3.75	13.00	2.00	...	...	6.2	1.7	9	3.63	...
22.9	.122	1.5	0.3	80.0	566.8	11.25	1.75	4.25	11.25	2.50	...	...	7.0	1.8	18	6.23	...
37.8	.259	2.9	1.0	75.0	546.8	89.75	33.50	90.50	135.75	15.50	...	235.4	6.4	2.4	170	60.76	...

Long. 59° 40' W. Height above Sea 25 feet.

67.2	.666	7.1	4.2	63.1	510.9	19.00	12.00	0.00	0.00	0.00	...	167.0	5.4	5.3	18	4.13	3.37
65.7	.633	6.8	4.8	57.8	511.2	13.00	14.00	0.00	0.00	1.00	...	203.4	5.1	4.6	10	0.61	0.47
66.5	.651	7.0	4.9	58.2	...	13.50	16.00	0.50	0.00	1.00	...	212.2	5.7	5.0	13	2.60	2.21
67.2	.666	7.1	5.0	58.2	...	14.50	15.00	0.50	0.00	0.00	...	249.8	6.5	5.4	14	1.85	1.57
68.8	.704	7.4	4.9	60.5	...	12.00	15.50	3.50	0.00	0.00	...	000.0	6.2	6.0	12	1.28	1.10
70.9	.766	8.1	3.5	70.4	...	15.25	14.25	0.00	0.60	0.50	...	271.4	7.2	5.7	18	5.52	5.07
72.5	.797	8.5	3.5	70.8	493.1	14.50	16.50	0.00	0.00	0.00	...	199.1	6.9	6.1	25	5.19	4.90
73.0	.810	8.6	3.7	70.4	498.8	9.50	15.50	5.00	0.00	1.00	...	150.3	6.9	6.0	21	7.26	6.54
76.2	.905	9.7	1.1	90.0	509.3	10.50	14.50	2.00	0.00	3.00	...	135.7	6.6	5.8	22	12.98	11.91
73.1	.813	8.6	3.5	71.2	...	7.00	17.50	5.50	0.00	1.00	...	135.5	6.7	7.1	25	6.72	5.77
70.7	.751	8.0	4.1	66.2	...	11.50	15.25	1.75	0.00	1.50	...	146.4	5.7	6.7	6	2.94	2.42
67.7	.678	7.3	4.4	62.9	...	15.50	15.50	0.00	0.00	0.00	...	209.8	5.9	6.3	18	2.51	1.69
69.9	.736	7.8	3.9	66.6	...	155.75	181.50	18.75	0.00	9.00	...	189.1	6.2	5.8	212	53.89	47.02

Long. 76° 42' W. Height above Sea 3,800 feet.

58.8	.494	5.4	2.4	69.1	...	3.00	2.75	1.00	1.25	23.00	...	...	3.4	6.5	18	7.00	...
58.4	.489	5.3	2.5	67.8	...	0.50	0.50	0.00	0.00	27.00	...	...	3.1	6.0	8	4.95	...
59.6	.511	5.6	2.8	66.6	...	0.00	0.00	0.00	0.00	0.00	...	...	1.5	3.7	5	1.70	...
62.0	.557	6.0	2.6	69.8	...	0.00	0.00	0.00	0.00	30.00	...	...	1.3	4.7	3	3.78	...
66.7	.656	7.1	1.4	83.5	...	0.50	0.00	0.00	0.50	30.00	...	...	3.3	4.6	25	12.87	...
71.9	.783	8.5	0.9	90.0	...	0.00	0.00	0.00	0.00	0.00	...	...	2.5	...	14	5.38	...
...
...
63.7	.589	6.5	1.5	80.5	459.1	1.00	0.25	0.50	1.25	28.00	...	...	3.3	...	24	24.99	...
62.3	.563	6.1	2.4	71.4	454.7	2.50	1.75	0.50	1.75	23.50	...	...	2.4	...	13	14.21	...
57.2	.469	5.2	2.4	67.0	460.2	0.75	1.00	0.25	0.00	29.00	...	...	2.7	...	9	3.64	...
62.3	.568	6.2	2.1	73.9	...	8.25	6.25	2.25	4.75	190.50	...	...	2.6	5.1	119	78.52	...
						↑	↑	↑	↑	↑							

* 9 months only.

† 212 days only.

Appendix

Abstract of Results of Meteorological Observations taken at

UP PARK CAMP, JAMAICA.

Lat. 17° 59' N.

Month.	Readings of the Barometer.			Temperature of the Air.							Mean Daily Readings of			
	Mean reduced and corrected to 32°.	Highest reduced and corrected to 32°.	Lowest reduced and corrected to 32°.	Highest during Month.	Lowest during Month.	Range during Month.	Mean.				Maximum in Sun's rays.	Minimum on grass.	Hygrometer.	
							Of all the highest.	Of all the lowest.	Daily Range.	Approximate Temperature.			Dry Bulb.	Wet Bulb.
January ...	29.752	30.397	29.383	99.0	58.5	40.5	95.6	62.0	33.6	78.8	141.6	57.2	82.4	73.8
February ...	29.776	30.898	29.583	100.1	59.8	40.3	96.4	62.6	33.8	79.5	142.0	57.3	83.3	74.1
March ...	29.891	30.088	29.637	100.5	59.3	41.3	96.2	62.0	34.2	79.1	144.0	57.0	84.5	74.7
April ...	29.778	29.839	29.643	98.3	60.3	38.0	95.4	64.0	31.4	79.7	142.2	...	84.2	74.6
May ...	29.736	29.843	29.647	97.4	62.1	35.3	95.4	64.0	31.4	79.7	142.6	...	82.7	74.5
June ...	29.761	29.838	29.683	97.3	61.2	36.1	95.5	64.3	31.2	79.7	141.2	...	84.4	76.1
July ...	29.786	29.836	29.675	...	...	...	...	...	...	...	...	...	...	...
August* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October... ..	29.646	29.831	29.522	95.0	68.0	27.0	91.7	72.3	19.4	82.0	144.2	67.2	...	...
November... ..	29.675	29.820	29.406	94.0	60.0	34.0	93.4	68.8	24.6	81.1	131.2	62.7	...	...
December... ..	29.722	29.834	29.711	93.8	64.8	29.0	93.6	65.4	28.2	79.5	147.0	...	...	...
Yearly Sums, Means, and Totals† ...	29.752	29.972	29.589	97.2	61.5	35.7	94.8	65.0	29.8	79.9	141.8	60.3	83.6	74.6

NASSAU, BAHAMAS.

Lat. 25° 5' N.

January ...	30.158	30.408	29.965	87.0	48.3	38.7	79.2	60.4	18.8	69.8	122.9	...	71.6	65.8
February ...	30.117	30.268	29.975	86.7	57.2	29.5	83.6	62.6	21.0	73.1	139.2	...	75.6	70.3
March ...	30.085	30.249	29.891	89.0	55.0	34.0	84.8	63.6	21.2	74.2	146.9	66.4	77.9	70.9
April ...	30.092	30.305	29.947	89.5	62.0	27.5	86.8	67.2	19.6	77.0	144.3	70.4	80.0	72.6
May ...	30.006	30.124	29.855	90.5	60.3	30.2	87.7	66.3	21.4	77.0	140.8	69.4	80.5	73.8
June ...	30.063	30.177	29.924	96.3	65.5	30.8	92.2	70.0	22.2	81.1	146.1	73.5	84.2	77.6
July ...	30.065	30.179	29.892	95.0	64.5	30.5	92.4	70.0	22.4	81.2	143.1	73.1	83.4	77.9
August...	29.989	30.095	29.829	95.0	71.3	23.7	91.7	75.1	16.6	83.4	148.7	74.3	83.8	79.0
September...	29.970	30.107	29.770	93.0	71.2	21.8	89.7	74.1	15.6	81.9	143.7	73.5	83.5	78.7
October...	29.954	30.150	29.802	89.0	68.5	20.5	88.0	72.0	13.0	78.5	142.4	71.4	79.2	75.9
November...	30.039	30.205	29.772	88.2	64.8	23.4	83.6	70.4	13.2	77.0	139.6	69.5	77.5	74.8
December...	30.123	30.247	29.906	84.7	64.5	20.2	80.2	68.0	12.2	74.1	134.6	66.9	74.5	71.8
Yearly Sums, Means, and Totals ...	30.055	30.210	29.877	90.3	62.7	27.6	86.4	68.3	18.1	77.3	141.0	70.8	79.3	74.1

BERMUDA.

Lat. 32° 17' N.

January ...	30.063	30.356	29.550	76.8	42.6	34.2	70.0	56.8	13.2	63.4	115.4	47.9	64.7	59.8
February...	29.990	30.298	29.376	80.6	44.0	36.6	70.9	57.1	13.8	64.0	115.8	50.0	65.3	60.3
March ...	29.891	30.278	29.322	78.4	46.5	31.9	69.9	55.9	14.0	62.9	123.9	48.3	65.1	59.3
April ...	30.030	30.272	29.677	82.4	47.0	35.4	76.1	60.9	15.2	68.5	141.1	52.8	71.5	64.9
May ...	29.965	30.228	29.617	86.8	56.2	30.6	79.2	63.2	16.0	71.2	146.1	53.5	74.5	67.9
June ...	29.987	30.154	29.790	90.4	64.0	26.4	84.6	68.6	16.0	76.6	150.0	60.7	80.0	75.2
July ...	29.965	30.202	29.767	95.2	69.0	26.2	89.8	71.4	18.4	80.6	158.9	63.1	84.9	77.2
August...	29.957	30.123	29.815	91.6	69.4	22.2	88.0	72.8	15.2	80.4	149.7	66.0	83.4	77.3
September...	29.910	30.070	29.626	90.6	64.0	26.6	83.3	69.9	13.4	76.6	139.7	60.6	78.9	73.9
October...	29.898	30.162	29.350	87.0	62.6	24.4	80.1	68.3	11.8	74.2	127.7	57.9	76.3	70.8
November...	29.969	30.224	29.680	81.2	55.0	26.2	75.1	62.9	12.2	69.0	124.5	53.3	71.0	65.0
December...	30.012	30.221	29.637	76.4	45.2	31.2	70.6	54.2	16.4	62.4	112.0	47.0	66.2	60.6
Early Sums, Means, and Totals ...	29.977	30.216	29.601	84.8	55.5	29.3	78.1	63.5	14.6	70.8	133.6	55.0	73.5	67.7

* No returns for August or September, pending supply of new instruments.

† Mean of 10 months.

‡ Mean of 9 months.

§ January to June only.

¶ For 10 months only.

No. VII.—continued.

Stations in North America and the West Indies, in the Year 1874.

Long. 76° 56' W. Height above Sea 225 feet.

Hygrometrical Results from Glaisher's Tables (5th edition).					Atmospherical Conditions.												
Mean Temperature of Dew Point.	Mean elastic Force of Vapour.	In a Cubic Foot of Air.			Mean Weight of Cubic Foot of Air.	Number of Days for mean Direction of Wind.				Number of calm, or nearly calm, Days.	Calculated from Robinson's Anemometer.		Amount of Cloud 0—10.	Ozone Scale 0—10.	Number of days on which Rain fell.	Amount of Rain fall.	
		Mean Weight of Vapour.	Mean additional Weight required for Saturation.	Mean degree of Humidity.		North.	East.	South.	West.		Mean daily pres- sure of Wind.	Mean daily Hori- zontal Movement of the Air.				On the Ground.	Feet above the Ground.
68.0	.687	7.3	4.5	62.0	505.7	7.50	12.50	6.50	0.50	4.00	...	Miles.	2.3	4.3	6	1.61	1.14
68.0	.684	7.3	4.8	59.5	505.2	3.00	12.25	10.00	0.25	2.50	...	...	2.4	4.2	4	0.65	0.44
68.3	.693	7.3	5.3	57.6	506.0	1.00	14.50	14.00	1.50	0.00	...	...	2.4	4.3	2	0.26	0.19
68.3	.692	7.3	5.2	58.2	504.4	1.50	13.50	14.50	0.00	0.00	...	...	2.7	4.4	3	1.20	...
69.0	.710	7.6	4.3	63.9	504.9	3.50	15.50	12.00	0.00	0.00	...	...	2.7	...	6	1.88	...
70.6	.750	8.0	4.6	63.2	503.6	1.50	15.00	13.50	0.00	0.00	...	...	2.9	4.0	6	3.40	2.54
...	...	...	...	...	...	1.50	15.00	13.50	1.00	0.00	...	...	2.3	3.7	...	...	...
...
...
...	...	...	...	...	...	4.50	15.50	11.00	0.00	0.00	...	...	3.0	...	18	13.63	...
...	...	...	...	...	...	12.50	12.75	4.50	0.25	0.00	...	...	3.3	4.9	13	6.57	4.17
...	...	...	...	...	...	17.25	12.00	1.75	0.00	0.00	...	...	2.2	4.7	4	2.58	...
68.7	70.2	7.4	4.8	60.7	504.9	53.75	138.50	101.25	3.50	6.50	...	...	2.6	4.3	62	31.78	...
*	*	*	*	*	*	†	†	†	†	†	†	†	...

Long. 77° 21' W. Height above Sea 44 feet.

61.1	.545	5.6	2.5	69.0	523.9	13.00	12.50	2.00	3.50	0.00	...	159.7	5.5	5.4	5	9.69	8.45
66.6	.653	7.0	2.5	73.5	518.9	7.00	11.50	7.50	2.00	0.00	...	144.0	5.0	5.5	2	0.20	0.09
66.0	.642	6.9	3.4	67.0	515.8	9.00	10.50	6.50	5.00	0.00	...	147.0	5.1	5.7	4	0.16	0.10
67.5	.674	7.2	3.8	65.4	513.7	5.75	12.75	8.75	2.75	0.00	...	211.0	5.9	6.3	3	1.09	0.90
69.3	.716	7.6	3.5	68.2	511.5	10.25	13.75	5.50	1.50	0.00	...	172.9	5.1	5.0	11	6.33	4.78
73.2	.819	8.7	3.8	69.6	508.4	9.25	14.50	5.75	0.50	0.00	...	112.1	6.2	3.9	11	4.78	3.68
74.3	.845	9.0	3.2	74.0	509.0	8.75	13.25	7.00	2.25	0.00	...	110.1	6.5	3.4	21	8.09	6.18
75.8	.891	9.5	2.8	76.8	507.1	7.75	11.25	7.50	4.50	0.00	...	112.1	6.3	2.5	15	7.76	5.99
75.6	.882	9.4	2.8	76.8	507.1	9.25	12.25	5.25	2.25	1.00	...	105.0	6.5	3.1	22	5.05	4.00
73.6	.831	8.9	1.8	83.7	511.3	16.00	13.00	1.00	1.00	0.00	...	198.7	6.0	3.1	15	7.95	7.62
72.9	.811	8.7	1.4	85.5	514.3	11.75	10.75	3.00	4.00	0.50	...	...	6.0	3.4	8	1.32	1.10
69.8	.731	7.9	1.3	85.5	519.2	15.50	13.00	1.25	1.25	0.00	...	...	5.9	3.7	4	0.97	0.87
70.5	.753	8.0	2.7	74.6	513.3	123.25	148.75	61.00	30.50	1.50	...	147.2	5.8	4.2	121	53.39	43.76
												\$					

Long. 64° 47' W. Height above Sea 120 feet.

55.8	.446	4.9	1.8	73.2	529.8	8.50	8.50	5.50	5.50	3.00	...	249.5	6.9	6.5	16	2.99	2.61
56.2	.453	5.0	1.9	73.0	527.7	6.50	5.50	9.00	6.00	1.00	...	282.1	7.7	7.1	14	4.39	3.56
54.6	.426	4.7	2.1	69.1	526.4	6.50	5.00	7.00	12.50	0.00	...	344.1	7.6	7.0	19	5.75	4.45
59.0	.517	5.6	2.8	66.6	521.9	7.00	3.00	10.50	9.50	0.00	...	253.0	5.4	7.1	7	1.68	1.45
63.1	.578	6.3	3.0	67.6	517.5	5.50	5.50	11.50	4.50	4.00	...	234.3	6.1	7.3	11	1.82	1.64
71.7	.784	8.4	2.6	76.0	511.4	3.00	4.00	10.00	12.00	1.00	...	188.7	6.4	6.6	9	3.68	3.27
72.2	.791	8.4	4.4	65.2	507.7	1.50	4.00	15.50	9.00	1.00	...	181.3	5.7	6.5	13	4.50	4.02
74.3	.845	9.0	3.2	74.0	507.2	2.00	2.50	14.00	11.50	1.00	...	207.6	6.9	6.5	20	9.74	6.93
69.5	.721	7.7	2.8	72.6	511.4	8.50	8.50	4.00	5.00	4.00	...	191.7	7.1	6.4	18	5.37	4.53
66.9	.660	7.1	2.7	73.0	514.1	8.00	7.00	6.00	8.00	2.00	...	255.3	6.3	6.6	15	14.88	13.36
60.4	.526	5.7	2.6	69.0	521.3	8.50	7.50	6.00	6.00	2.00	...	259.7	7.1	6.5	14	5.61	4.70
56.9	.447	4.9	2.1	69.0	527.3	11.50	6.75	3.75	7.50	1.50	...	...	7.6	...	15	2.90	...
63.4	.599	6.5	2.7	70.7	518.6	77.00	67.75	102.75	97.00	20.50	...	240.7	6.7	6.2	171	63.31	50.52
												†		†			

* January to June only.
§ For 10 months only.† 303½ days only, April half a day short.
‡ Several days out of order, no entry.† 9 months only.
¶ 11 months only.

Summary of Results of Meteorological Observations taken at

Stations, with their Height above the Sea.	Readings of the Barometer.			Temperature of the Air.							Mean Daily Readings of			
	Mean reduced and corrected to 32°.	Highest reduced and cor- rected to 32°.	Lowest reduced and cor- rected to 32°.	Highest during Year.	Lowest during Year.	Range during Year.	Mean				Maximum in Sun's rays.	Minimum on Grass.	Hygrometer.	
							Of all the highest.	Of all the lowest.	Daily Range.	Approximate Temperature.			Dry Bulb.	Wet Bulb.
*Halifax, N.S. ... 175 ft.	29.791	During year. 30.570 28.835		87.0	-15.7	102.7	53.6	31.0	22.6	42.3	97.0	27.9	45.4	42.2
Barbadoes 25 „	{ Too incomplete to summarize }	{		90.0	63.0	27.0	87.2	73.1	14.1	80.1	134.4	69.9	82.4	74.9
†Newcastle, Jamaica ... } 3,800 „	Ditto	89.0	33.0	56.0	78.3	49.8	28.5	64.0	137.7	49.2	71.0	66.1		
‡Up Park Camp, Jamaica ... } 225 „	29.752 30.398 29.383	100.5	58.5	42.0	94.8	65.0	29.8	79.9	141.8	60.3	83.6	74.6		
Nassau, Bahamas 44 „	30.055 30.408 29.770	96.3	48.3	48.0	86.4	68.3	18.1	77.3	141.0	70.8	79.3	74.1		
§Bermuda 120 „	29.977 30.356 29.322	95.2	42.6	52.6	78.1	63.5	14.6	70.8	133.6	55.0	73.5	67.7		

Abstract of Results of Meteorological Observations taken at Stations in

COLOMBO, CEYLON.

Lat. 6° 56' N.

Month.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
January ...	29.899	30.033	29.791	89.0	69.5	19.5	85.1	73.5	11.6	79.3	153.7	60.4	81.5	75.5
February ...	29.873	29.976	29.744	88.2	72.6	15.6	85.0	74.6	10.4	79.9	150.7	60.8	82.6	76.7
March ...	29.839	29.956	29.724	90.0	71.2	18.8	87.4	75.6	11.8	81.5	152.6	61.7	84.7	77.5
April ...	29.833	30.014	29.723	98.6	68.0	30.6	95.8	73.0	22.8	84.4	144.5	74.1	89.5	81.2
May ...	29.812	29.936	29.651	97.2	71.2	26.0	91.6	76.4	15.2	84.0	138.6	74.0	86.4	80.4
June ...	29.826	29.945	29.691	95.8	74.0	21.8	91.6	77.4	14.2	84.5	139.8	75.4	85.1	79.7
July ...	29.847	29.947	29.745	93.0	72.0	21.0	90.8	76.4	14.4	83.6	139.2	74.5	84.2	78.5
August ...	29.861	29.965	29.751	96.1	73.9	22.2	93.8	77.2	16.6	85.5	142.4	75.5	86.1	79.4
September ...	29.855	29.962	29.739	95.6	74.3	21.3	92.4	77.2	15.2	84.8	141.1	75.5	85.4	78.8
October ...	29.862	30.013	29.722	95.4	71.0	24.4	91.6	74.6	17.0	83.1	136.8	72.6	84.6	78.6
November ...	29.905	30.018	29.777	97.5	72.0	25.5	93.2	74.4	18.8	83.8	138.1	72.3	85.1	78.6
December ...	29.918	30.026	29.794	97.5	71.8	25.7	92.6	73.2	19.4	82.9	140.3	71.6	84.3	77.6
Yearly Sums, Means, and Totals ...	29.862	29.983	29.737	94.5	71.8	22.7	90.9	75.3	15.6	83.1	143.1	70.7	84.9	78.5

KANDI, CEYLON.

Lat. 7° 18' N.

January ...	...	...	...	96.4	55.4	41.0	88.2	61.6	26.6	74.9	...	...	76.7	71.3
February ...	...	...	...	96.6	51.0	45.6	90.4	62.0	28.4	76.2	...	...	79.2	72.9
March ...	...	...	...	101.2	55.8	45.4	95.6	61.4	34.2	78.5	...	...	84.7	76.6
April ...	...	...	...	102.3	59.6	42.6	97.0	61.6	32.4	80.8	...	...	85.5	77.1
May ...	...	...	...	94.6	56.0	38.6	87.7	65.5	22.2	76.6	...	...	80.4	74.8
June ...	...	...	...	89.2	59.6	29.6	83.8	64.2	19.6	74.0	...	...	77.5	73.8
July ...	...	...	...	90.2	61.0	29.2	82.4	64.4	18.0	73.4	...	...	76.6	72.6
August ...	...	...	...	95.0	61.2	33.8	87.2	64.6	22.6	75.9	...	...	72.8	73.5
September ...	...	...	...	87.0	54.6	32.4	82.5	64.7	17.8	73.6	...	...	76.6	72.7
October ...	...	...	...	92.4	58.2	34.2	83.6	64.0	19.6	73.8	...	...	77.5	72.0
November ...	...	...	...	91.4	58.4	33.0	87.0	64.0	23.8	75.9	...	...	78.6	72.7
December ...	...	...	...	91.2	59.4	31.8	87.2	63.2	24.0	75.2	...	...	77.0	71.3
Yearly Sums, Means, and Totals ...	...	...	...	93.9	57.5	36.4	87.8	63.7	24.1	75.7	...	...	79.1	73.5

* Halifax.—Anemometer readings for nine months only.

† Newcastle.—Observations for nine months only. *Vide* Abstract.‡ Up Park Camp.—The "means" are for broken periods. *Vide* Abstract for that Station.

§ Bermuda.—Anemometer readings and Ozone Scale for eleven months only.

No. VII.—continued.

Stations in North America and the West Indies, in the Year 1874.

Hygrometrical Results from Glaisher's Tables (5th edition).							Atmospherical Conditions.												
Mean Temperature of Dew Point.	Mean Elastic Force of Vapour.		In a Cubic Foot of Air.		Mean Weight of Cubic Foot of Air.	Number of Days for mean Direction of Wind.				Number of calm, or nearly calm, Days.	Calculated from Robinson's Anemometer.		Amount of Cloud 0—10.	Ozone Scale 0—10.	Number of Days on which Rain fell.	Rainfall on the Ground.	Latitude.	Longitude.	
	Mean Weight of Vapour.	Mean additional Weight required for Saturation.	Mean Degree of Humidity.	North.		East.	South.	West.	Mean daily pressure of Wind.		Mean daily Horizontal Movement of the Air.								
37·8	·259	2·9	1·0	75·0	546·8	89·75	33·50	90·50	135·75	15·50	lbs. per sq. foot	Miles	6·4	2·4	170	60·70	44 39 N.	63 36 W.	
69·9	·730	7·8	3·9	66·6	...	155·75	181·50	18·75	...	9·00	...	189·1	6·2	5·8	212	53·89	13 4 ,,	59 40 ,,	
62·3	·568	6·2	2·1	73·9	...	8·25	6·25	2·25	4·75	190·50	...	...	2·6	5·1	119	78·52	18 62 ,,	76 42 ,,
68·7	70·2	7·4	4·8	60·7	504·9	53·75	138·50	101·25	3·50	6·50	...	...	2·6	4·3	62	31·78	17 59 ,,	76 56 ,,
70·5	·753	8·0	2·7	74·6	513·3	123·25	148·75	61·00	30·50	1·50	...	147·2	5·8	4·2	121	52·39	25 5 ,,	77 21 ,,	
63·4	·599	6·6	2·7	70·7	518·6	77·00	67·75	102·75	97·00	20·50	...	240·7	6·7	6·2	171	63·31	32 17 ,,	64 47 ,,	

the Island of Ceylon, Straits Settlements, and China, in the Year 1874.

Long. 79° 49' E. Height above Sea 18 feet.

71·4	·771	8·3	3·2	72·0	508·3	14·25	7·25	0·25	8·25	1·00	...	160·1	4·6	1·1	7	2·23	...	...
72·8	·805	8·6	3·2	72·4	506·8	5·25	3·25	2·75	13·75	3·00	...	96·6	4·6	1·7	8	5·18	...	...
72·8	·808	8·6	4·1	67·2	504·2	3·75	3·25	10·50	12·00	1·50	...	123·3	5·2	1·0	3	1·66	...	...
76·0	·897	9·4	5·3	64·3	499·3	0·75	1·00	11·50	10·25	6·50	...	141·4	6·5	3·9	10	4·35	...	...
76·5	·916	9·7	3·7	72·0	501·6	1·00	0·00	12·75	13·75	3·50	...	189·2	9·0	4·1	20	12·18	...	...
76·2	·905	9·5	3·3	74·4	503·2	1·25	0·00	13·25	11·50	1·00	...	184·7	8·9	3·8	17	4·87	...	...
74·7	·861	9·1	3·4	73·2	504·5	0·00	0·00	15·25	14·75	1·00	...	181·5	9·1	3·5	12	2·45	...	...
75·1	·873	9·2	4·1	69·3	502·9	1·00	0·75	14·25	15·00	0·00	...	178·9	8·6	3·3	10	1·03	...	...
75·1	·856	9·0	3·9	70·0	503·5	0·25	0·00	14·75	15·00	0·00	...	304·4	9·0	3·5	9	1·54	...	...
74·7	·840	9·1	3·6	72·0	504·4	0·25	0·00	14·75	15·00	1·00	...	...	8·4	5·9	17	30·64	...	...
74·4	·832	9·0	3·9	70·1	505·0	4·75	6·25	8·75	7·25	3·00	...	...	6·1	2·8	14	19·05	...	...
73·2	·813	8·7	3·3	69·2	505·9	11·75	9·75	2·75	5·25	1·50	...	...	5·0	3·6	10	5·61	...	...
74·4	·852	9·0	3·8	70·5	504·1	41·25	31·50	121·50	144·75	23·00	...	173·9*	7·1	3·2	137	90·79	...	...

Long. 80° 48' E. Height above Sea 1,678 feet.

67·5	·674	7·3	2·6	73·4	...	0·00	31·00	0·00	0·00	0·00	...	...	3·3	4·7	12	2·63	...	...
68·6	·700	7·5	3·2	69·8	...	0·00	21·00	0·50	0·50	6·00	...	...	3·9	5·7	7	3·24	...	...
71·8	·768	8·2	4·5	64·3	...	0·00	10·00	3·00	3·00	15·00	...	...	2·5	4·6	2	1·76	...	...
71·1	·700	8·4	4·6	64·1	...	3·50	1·50	4·00	12·00	9·00	...	...	4·9	4·8	15	4·39	...	...
71·0	·760	8·1	3·0	72·6	...	0·00	0·00	5·00	23·00	3·00	...	...	6·4	6·5	22	8·58	...	...
71·2	·766	8·2	1·9	81·0	...	0·00	0·00	5·50	24·50	0·00	...	...	7·0	6·3	27	11·49	...	...
39·8	·729	7·9	2·0	79·6	...	0·00	0·00	6·50	24·50	0·00	...	...	5·1	6·0	22	8·23	...	...
69·9	·731	7·8	2·7	73·8	...	0·00	0·00	6·50	24·50	0·00	...	...	4·3	5·3	13	2·48	...	...
70·0	·733	7·9	1·9	80·1	...	0·00	0·00	5·00	25·00	0·00	...	...	3·8	5·9	27	6·27	...	...
69·1	·649	7·4	2·7	73·0	...	2·25	2·75	2·50	22·00	1·50	...	...	5·3	4·1	23	10·76	...	...
68·6	·701	7·5	3·0	71·4	...	8·00	5·25	1·00	11·25	4·50	...	...	4·6	3·3	19	15·81	...	...
67·3	·670	7·2	2·8	72·2	...	5·25	11·50	3·25	3·00	8·00	...	...	4·3	4·2	14	3·80	...	...
69·6	·726	7·8	2·9	72·9	...	10·00	83·00	42·75	173·25	47·00	...	...	4·6	5·1	206	79·48	...	...

* Nine months only.

Abstract of Results of Meteorological Observations taken at Stations in

TRINCOMALEE, CEYLON.

Lat. 8° 30' N.

Month.	Readings of the Barometer.			Temperature of the Air.							Mean Daily Readings of			
	Mean reduced and corrected to 32°.	Highest reduced and corrected to 32°.	Lowest reduced and corrected to 32°.	Highest during Month.	Lowest during Month.	Range during Month.	Mean				Maximum in Sun's rays.	Minimum on Grass.	Hygrometer.	
							Of all the highest.	Of all the lowest.	Daily Range.	Approximate Temperature.			Dry Bulb.	Wet Bulb.
January	91.0	66.0	25.0	88.2	70.8	17.4	79.5	...	...	83.5	77.6
February	92.4	64.0	28.4	90.4	70.6	19.8	80.5	...	...	84.3	78.9
March	99.0	65.0	34.0	93.1	70.5	22.6	81.8	...	...	86.0	79.4
April	104.0	70.0	34.0	96.9	72.3	24.6	84.6	...	...	90.3	80.6
May	102.0	64.0	38.0	97.7	72.5	25.2	85.0	...	...	88.9	80.0
June	103.0	67.0	36.0	97.9	72.8	25.1	85.4	...	...	89.1	79.3
July	101.2	70.0	31.2	97.2	72.6	24.6	84.9	...	...	86.7	79.0
August	101.4	70.0	31.4	98.8	71.8	27.0	85.3	...	...	86.5	79.1
September	99.0	68.0	31.0	95.7	70.9	24.8	83.3	...	...	85.3	78.8
October	101.4	67.0	34.4	95.3	70.7	24.6	83.0	...	...	85.4	78.7
November	95.0	68.0	27.0	90.6	70.0	20.6	80.3	...	...	83.9	79.6
December	92.5	66.0	26.5	87.2	69.6	17.6	78.4	...	...	82.3	77.8
Yearly Sums, Means, and Totals	98.5	67.1	31.4	94.1	71.3	22.8	82.7	...	...	86.0	79.1

SINGAPORE.

Lat. 1° 16' N.

January	29.279	29.394	29.172	98.6	64.6	34.0	95.3	67.1	28.2	81.2	...	60.4	83.1	77.1
February	29.256	29.348	29.106	99.6	62.2	37.4	96.8	67.4	29.4	82.1	...	55.2	84.2	79.0
March	29.182	29.312	29.084	102.6	66.8	35.8	100.7	69.1	31.6	84.9	...	57.3	86.2	82.2
April	29.214	29.320	29.083	103.2	67.2	36.0	97.0	69.4	27.6	83.2	...	60.2	85.2	81.5
May	29.190	29.229	29.092	102.4	67.4	35.0	99.0	70.8	28.2	84.9	...	59.4	84.5	81.1
June	29.182	29.220	29.077	106.0	68.4	37.6	100.5	71.1	29.4	85.8	...	60.1	85.0	81.7
July	29.180	29.304	29.084	...	68.2	...	...	72.7	...	...	...	...	83.4	78.8
August	29.204	29.306	29.101	...	69.4	...	...	72.1	...	...	...	...	82.9	78.5
September	29.203	29.316	29.070	...	68.2	...	...	72.3	...	...	...	...	83.4	79.3
October	29.194	29.280	29.051	...	70.2	...	...	72.2	...	...	...	...	83.9	80.0
November	29.217	29.291	29.131	...	69.5	...	...	71.1	...	...	...	...	82.5	79.1
December	29.223	29.322	29.108	...	69.2	...	...	70.4	...	...	...	...	82.9	79.3
Yearly Sums, Means, and Totals ... }	29.210	29.303	29.097	...	67.6	...	...	70.5	...	...	...	...	83.9	79.8

HONG KONG.

Lat. 22° 16' N.

January	30.012	30.215	29.811	74.5	45.0	29.5	63.3	53.3	10.0	58.3	88.4	49.9	59.4	54.6
February	29.948	30.210	29.670	76.0	51.0	25.0	66.0	57.2	8.8	61.6	96.2	55.2	61.6	58.0
March	29.857	30.083	29.718	79.8	52.0	27.8	69.2	60.2	9.0	64.7	95.7	58.6	65.1	61.7
April	29.831	29.992	29.655	88.6	59.0	29.6	78.1	65.1	13.0	71.6	111.0	63.3	71.9	66.1
May	29.629	29.761	29.455	95.8	66.5	29.3	82.9	73.9	9.0	78.4	108.3	72.6	78.8	75.0
June	29.644	29.789	29.370	100.4	76.0	24.4	94.8	79.0	15.8	87.0	134.7	76.6	87.4	80.1
July	29.672	29.895	29.321	99.2	75.9	23.3	93.0	79.8	13.2	86.4	132.8	77.1	86.9	80.7
August	29.612	29.774	29.471	97.8	75.5	22.3	91.1	78.3	12.8	84.7	128.6	76.0	85.0	80.6
September	29.684	29.828	29.460	95.4	75.0	20.4	90.5	78.1	12.4	84.3	131.4	75.2	85.2	80.8
October	29.835	30.095	29.577	96.4	61.0	35.4	86.6	74.6	12.0	80.6	127.1	71.8	81.3	76.4
November	30.006	30.248	29.801	83.8	46.4	37.4	75.4	62.2	13.2	68.8	111.8	58.6	70.3	66.1
December	29.985	30.119	29.806	83.4	51.8	31.6	71.8	60.0	11.8	65.9	103.6	56.9	66.9	60.6
Yearly Sums, Means, and Totals ... }	29.801	29.986	29.593	89.3	61.3	28.0	80.2	68.6	11.7	74.3	114.1	65.9	74.9	70.0

No. VII.—continued.

the Island of Ceylon, Straits Settlements, and China, in the Year 1874.

Long. 82° E. Height above Sea 25 feet.

Hygrometrical Results from Glashier's Tables (5th edition).						Atmospherical Conditions.											
Mean Temperature of Dew Point.	Mean elastic Force of Vapour.		In a Cubic Foot of Air.		Mean Weight of Cubic Foot of Air.	Number of Days for mean Direction of Wind.				Number of calm, or nearly calm, Days.	Calculated from Robinson's Anemometer.		Amount of Cloud 0—10.	Ozone Scale 0—10.	Number of days on which Rain fell.	Amount of Rain fall.	
	Mean Weight of Vapour.	Mean additional Weight required for Saturation.	Mean degrees of Humidity.	North.		East.	South.	West.	Mean daily pres- sure of Wind.		Mean daily Hori- zontal Movement of the Air.	On the Ground.				Feet above the Ground.	
73·7	·830	8·8	3·4	72·4	...	11·00	20·00	0·00	0·00	0·00	lbs. per sq. foot	Miles	3·0	5·8	10	2·13	...
75·3	·879	9·3	3·2	74·4	...	3·50	24·50	0·00	0·00	0·00	...	...	2·8	5·5	3	2·25	...
75·1	·875	9·2	4·0	69·6	...	0·00	25·00	3·00	3·00	0·00	...	...	2·4	5·4	3	2·04	...
74·6	·856	8·9	6·0	59·9	...	2·00	26·00	1·00	1·00	0·00	...	...	1·7	4·4	2	0·08	...
74·4	·849	8·9	5·4	62·3	...	0·00	2·00	14·50	14·50	0·00	...	...	3·1	5·3	7	2·74	...
73·1	·813	8·5	5·9	58·6	...	0·00	0·00	15·00	15·00	0·00	...	...	3·3	4·6	7	3·30	...
74·1	·842	8·9	4·6	65·9	...	0·00	0·00	15·50	15·50	0·00	...	...	3·2	5·1	8	6·90	...
74·4	·851	8·9	4·4	66·9	...	0·00	1·00	15·00	15·00	0·00	...	...	3·7	4·3	11	4·06	...
74·6	·858	9·0	3·9	70·3	...	0·00	6·00	12·00	12·00	0·00	...	...	3·9	4·6	14	10·93	...
74·3	·852	9·0	4·0	69·6	...	0·00	2·50	14·50	13·50	0·50	...	...	4·3	5·8	8	9·55	...
76·8	·919	9·8	2·5	79·4	...	9·50	13·00	4·50	3·00	0·00	...	...	5·6	6·3	17	9·45	...
74·8	·862	9·2	2·6	78·0	...	14·50	10·00	1·75	4·75	0·00	...	...	5·5	6·8	21	14·19	...
74·6	·857	9·0	4·2	68·9	...	40·50	130·00	96·75	97·25	0·50	...	...	3·5	5·4	111	68·62	...

Long. 105° 31' E. Height above the Sea 116 feet.

73·1	·813	8·6	3·4	72·0	496·2	...	...	...	...	...	...	96·7	6·7	4·7	18	4·20	...
75·6	·885	9·4	3·1	75·2	494·4	...	...	...	...	...	...	104·2	6·5	4·2	10	8·22	...
79·6	1·015	10·7	2·6	80·2	490·6	...	...	...	...	...	...	136·8	6·6	4·4	14	2·16	...
79·1	·996	10·6	2·3	81·7	492·2	...	...	...	...	...	...	72·2	5·6	3·3	16	6·33	...
78·9	·987	10·5	2·2	83·5	492·4	...	...	...	...	...	...	54·5	6·0	3·4	13	4·01	...
79·5	1·010	10·7	2·1	83·5	461·6	...	...	...	...	...	...	71·0	5·9	3·2	14	6·51	...
76·7	·888	9·5	2·7	77·6	493·8	...	...	...	...	...	...	74·4	5·0	3·1	21	5·15	...
75·6	·883	9·4	2·6	78·9	494·7	...	...	...	...	...	...	76·3	5·4	3·4	18	10·91	...
76·6	·913	9·8	2·4	79·9	494·0	...	...	...	...	...	...	71·7	4·9	2·8	19	7·42	...
77·4	·939	10·0	2·3	80·5	493·2	...	...	...	...	...	...	91·1	4·9	3·1	20	8·24	...
76·8	·920	9·8	2·0	83·0	495·1	...	...	...	...	...	...	72·4	5·3	2·6	26	18·63	...
76·9	·922	9·8	2·2	82·0	494·7	...	...	...	...	...	...	55·9	5·0	3·3	23	7·48	...
77·1	93·1	9·9	2·5	79·8	491·1	...	...	...	...	...	...	81·4	5·6	3·5	212	83·26	...

Long. 114° 9' E. Height above Sea 43 feet.

50·2	·364	4·1	1·6	72·0	535·2	7·00	18·75	1·25	4·00	0·00	...	...	6·0	3·2	4	0·30	0·25
54·9	·431	4·8	1·3	79·0	530·7	6·25	16·75	2·75	1·75	0·50	...	...	6·6	3·3	7	2·06	1·53
58·9	·499	5·5	1·3	81·0	525·3	4·00	19·50	3·00	4·00	0·50	...	...	8·1	2·8	10	4·41	3·60
61·7	·552	6·0	2·5	69·9	517·8	3·75	19·75	2·00	3·00	1·50	...	...	6·9	2·9	12	7·07	4·32
72·4	·796	8·5	2·0	80·0	506·1	0·00	12·25	10·25	6·50	2·00	...	...	9·0	3·8	24	39·76	35·16
75·4	·882	9·3	4·5	67·3	498·1	0·50	7·75	12·00	8·25	1·50	...	...	6·0	1·9	13	10·54	10·12
76·7	·922	9·7	3·8	71·2	497·1	0·25	7·00	8·00	14·75	1·00	...	...	5·5	2·0	16	9·87	9·54
77·7	·958	10·1	2·7	78·4	499·3	1·50	9·75	9·50	6·25	4·00	...	...	7·0	2·5	18	11·68	9·75
77·9	·959	10·1	2·7	78·4	500·2	2·25	11·75	8·00	6·50	1·50	...	...	5·2	3·0	15	6·20	5·82
73·1	·815	8·7	2·7	76·4	507·2	5·75	21·00	0·75	1·00	2·50	...	...	4·3	4·5	4	4·20	4·01
62·9	·575	6·3	1·8	77·0	522·2	7·50	15·25	0·25	2·50	4·50	...	...	3·5	6·2	2	0·11	0·11
55·6	·442	4·9	2·4	67·4	526·2	3·25	23·00	0·00	1·25	3·50	...	...	4·5	5·7	2	0·19	0·18
66·4	68·2	7·8	2·4	74·9	513·8	42·00	182·50	57·75	59·75	23·00	...	...	5·9	3·5	127	96·39	34·39

Appendix

Summary of Results of Meteorological Observations taken at Stations in

Stations, with their Height above the Sea.	Readings of the Barometer.			Temperature of the Air.							Mean Daily Readings of			
	Mean reduced and corrected to 32°.	Highest reduced and cor- rected to 32°.	Lowest reduced and cor- rected to 32°.	Highest during Year.	Lowest during Year.	Range during Year.	Mean				Maximum in Sun's rays.	Minimum on Grass.	Hygrometer.	
							Of all the highest.	Of all the lowest.	Daily Range.	Approximate Temperature.			Dry Bulb.	Wet Bulb.
Colombo* ... 18 ft.	29.862	30.033	29.651	98.6	68.0	30.6	90.9	75.3	15.6	83.1	143.1	70.7	84.9	78.5
Kandi ... 1,687 „	...	...	...	102.2	51.0	51.2	87.8	63.7	24.1	75.7	...	...	79.1	73.5
Trincomalee 25 „	...	...	...	104.0	64.0	40.0	94.1	71.3	22.8	82.7	...	...	86.0	79.1
Singapore ... 116 „	29.210	29.394	29.051	...	62.2	...	...	70.5	...	...	...	...	83.9	79.8
Hong Kong 43 „	29.801	30.248	29.321	100.4	45.0	55.4	80.2	68.5	11.7	74.3	114.1	65.9	74.9	70.0

Abstract of Results of Meteorological Observations taken at Stations in

CAPE OF GOOD HOPE.

Lat. 34° 56' S.

January ...	29.883	30.052	29.752	98.2	42.5	55.7	85.2	56.2	29.0	70.7	134.0	53.6	75.3	66.1
February ...	29.899	30.137	22.718	93.5	50.0	43.5	83.2	56.2	27.0	69.7	133.5	51.1	72.9	62.9
March ...	29.879	30.021	29.703	93.6	50.2	43.4	80.6	57.2	23.4	68.9	129.3	54.0	70.7	63.5
April ...	30.010	30.168	29.729	83.8	47.8	36.0	70.0	54.8	15.2	62.4	114.2	51.2	63.8	59.6
May ...	30.094	30.441	29.847	79.0	41.4	37.6	67.7	48.8	18.9	58.2	104.0	44.2	61.0	56.9
June ...	30.193	30.452	29.848	79.8	34.4	45.4	66.3	45.1	21.2	55.7	98.8	40.0	59.4	56.4
July ...	30.205	30.409	29.914	69.2	38.0	31.2	61.0	45.0	16.0	53.0	95.2	40.9	55.9	53.3
August ...	30.106	30.474	29.829	82.2	38.8	43.4	66.7	47.7	19.0	57.2	112.1	44.1	60.3	55.9
September ...	30.071	30.331	29.811	95.0	40.4	54.6	70.9	49.6	21.3	60.3	119.7	45.8	64.2	57.8
October ...	30.018	30.273	29.829	88.8	40.0	48.8	73.0	49.0	21.0	61.0	124.9	44.5	65.8	58.7
November ...	29.947	30.206	29.707	96.4	43.2	53.2	75.6	53.4	22.2	64.5	128.8	50.8	68.0	60.6
December ...	29.892	30.110	29.687	100.8	24.0	76.8	83.5	53.7	29.8	68.6	133.3	53.7	74.2	63.2
Yearly Sums, Means, and Totals ...	30.016	30.256	29.781	88.4	40.9	47.5	73.6	51.4	22.2	62.5	119.0	47.8	65.9	59.6

FORT NAPIER, NATAL.

Lat. 29° 3' S.

January ...	27.616	27.771	27.258	100.4	54.8	45.6	82.5	60.3	22.2	71.4	...	...	74.9	69.1
February ...	27.609	27.873	27.233	97.4	53.8	43.6	80.4	58.6	21.8	69.5	...	...	73.6	67.4
March ...	27.603	27.834	27.398	86.4	53.0	33.4	79.1	57.1	22.0	68.1	...	...	72.2	67.2
April ...	27.655	27.856	27.316	86.4	43.2	43.2	77.4	52.2	25.2	64.8	...	...	70.3	63.2
May ...	27.743	27.996	27.416	87.8	34.8	53.0	74.4	45.8	28.6	60.1	...	...	65.5	55.3
June ...	27.856	28.083	27.442	80.0	32.7	47.3	70.9	40.9	30.0	55.9	...	...	61.9	52.9
July ...	27.779	28.235	27.581	80.4	31.0	49.4	68.0	40.0	28.0	54.0	...	...	59.5	51.1
August ...	27.759	28.123	27.301	93.0	34.5	58.5	74.8	43.2	31.6	59.0	...	...	65.9	54.0
September ...	27.758	28.084	27.304	92.4	34.3	63.9	77.1	46.9	30.2	62.0	...	...	68.9	58.7
October ...	27.639	27.925	27.350	97.4	42.0	55.4	82.2	51.4	30.8	66.8	...	...	72.0	62.7
November ...	27.591	27.942	27.229	100.0	45.0	55.0	79.0	54.6	24.4	66.8	...	...	70.8	64.1
December ...	27.585	27.763	27.371	85.7	49.5	36.2	72.2	55.4	16.8	63.8	...	...	69.6	64.7
Yearly Sums, Means, and Totals ...	27.683	27.958	27.350	91.1	42.4	48.7	76.5	50.5	26.0	63.5	...	...	68.7	60.9

* Anemometer readings for nine months only.

No. VII.—*continued.*

the Island of Ceylon, Straits Settlements, and China, in the Year 1874.

Hygrometrical Results from Glaisher's Tables (5th edition).						Atmospherical Conditions.													
Mean Temperature of Dew Point.	Mean elastic Force of Vapour.		In a Cubic Foot of Air.		Foot of Air.	Number of Days for mean Direction of Wind.				Number of Calm, or nearly calm, Days.	Calculated from Robinson's Anemometer		Amount of Cloud 0—10.	Ozone Scale 0—10.	Number of Days on which Rain fell.	Amount of Rainfall.		Latitude.	Longitude.
	Mean Weight of Vapour.	Mean additional Weight required for Saturation.	Mean Degree of Humidity.	North.		East.	South.	West.	Mean daily pres- sure of Wind.		Mean daily Hori- zontal Movement of the Air.	On the Ground.				Feet above the Ground.			
74.4	852	9.0	3.8	70.5	504.1	44.25	31.50	121.50	144.75	23.00	...	173.9	7.1	3.2	137	90.79	...	6 56 N	79 49 E
69.6	726	7.8	2.9	72.9	...	19.00	83.00	43.75	173.25	47.00	...	...	4.6	5.1	206	79.48	...	7 18 „	80 48 „
74.6	857	9.0	4.2	68.9	...	40.50	130.00	96.75	97.25	.50	...	...	3.5	5.4	110	68.62	...	8 30 „	82 0 „
77.1	931	9.9	2.5	79.8	491.1	No record.					...	81.4	5.6	3.5	212	83.26	...	1 16 „	105 31 „
66.4	682	7.3	2.4	74.9	513.8	42.00	182.50	57.75	59.75	23.00	...	...	5.9	3.5	127	96.39	...	22 16 „	114 9 „

Cape of Good Hope, Natal, and Sierra Leone.

Long. 18° 27' E. Height above Sea 27 feet.

										Miles.	Inches		Inches			
59.5	510	5.5	4.0	57.5	515.8	7.00	7.00	7.25	7.75	2.00	...	0.6	1.5	1	0.26	0.19
55.5	442	4.9	3.9	54.0	518.7	6.50	5.50	5.50	6.50	4.00	...	1.2	2.0	0	0.00	0.00
58.0	483	5.3	2.9	64.2	520.2	11.50	5.50	4.50	9.50	0.00	...	3.7	3.7	5	0.97	0.82
56.1	452	5.0	1.6	76.8	529.6	9.25	5.75	2.75	12.25	0.00	...	5.5	3.3	13	2.81	2.26
53.3	407	4.6	1.4	76.5	534.2	8.75	4.25	5.00	13.50	0.00	...	5.2	3.0	8	0.79	0.46
53.7	414	4.6	1.0	82.4	537.6	7.50	7.50	4.25	16.75	0.00	...	4.2	3.8	8	1.01	0.68
50.9	374	4.2	0.8	84.3	541.7	16.50	4.75	5.00	10.75	0.00	...	4.9	5.7	17	4.92	4.07
52.1	389	4.3	1.5	74.0	533.5	8.50	4.50	4.50	13.50	0.00	...	5.2	5.3	9	1.83	1.39
52.5	396	4.4	2.2	65.4	530.6	8.75	5.50	6.25	9.50	0.00	...	3.6	5.9	6	0.91	0.64
53.6	413	4.5	2.2	67.3	529.0	9.50	6.75	5.50	9.25	0.00	...	4.1	5.8	4	0.64	...
54.8	430	4.7	2.8	62.4	524.5	10.25	3.50	5.25	11.00	0.00	...	5.4	5.8	6	1.31	...
55.2	438	4.7	4.4	52.0	517.4	6.00	10.00	9.50	5.00	0.00*	...	3.0	5.7	...	...	...
54.6	429	4.7	2.4	68.1	527.7	104.00	70.50	65.25	118.75	6.00	...	3.9	4.3	77	15.45	10.51

Long. 32° 2' E. Height above Sea 2,200 feet.

64.8	615	6.7	2.7	70.9	476.4	4.50	23.00	3.00	0.50	0.00	...	...	7.3	4.2	21	6.72	...	...	...
62.9	574	6.2	2.7	69.2	477.6	2.75	18.25	6.25	0.75	0.00	...	...	7.7	...	14	6.74	...	...	...
63.4	586	6.3	2.2	74.2	478.7	1.75	21.50	5.75	1.00	1.00	...	...	6.8	...	13	7.59	...	...	...
57.7	478	5.2	2.9	64.6	481.9	8.50	16.50	2.75	1.75	0.50	...	...	4.8	...	7	1.35	...	...	...
47.0	322	3.5	3.4	50.7	488.9	4.75	21.00	3.50	1.25	0.50	...	...	3.9	...	4	1.15	...	...	...
45.1	302	3.4	3.8	54.9	494.4	3.75	19.25	5.50	0.50	1.00	...	...	2.5	...	1	0.05	...	...	...
43.7	285	3.2	2.5	55.4	495.4	2.00	19.75	7.50	1.75	0.00	...	...	2.3	...	5	0.97	...	...	...
44.4	291	3.2	3.8	45.3	488.9	1.50	22.75	3.50	2.75	0.50	...	...	2.8	...	2	0.07	...	...	...
50.7	371	4.0	3.7	51.2	485.8	5.50	19.50	3.50	1.50	0.00	...	...	3.1	...	6	0.71	...	...	...
55.7	446	4.9	4.0	56.1	480.4	5.50	20.25	2.50	2.25	0.50	...	...	5.1	...	9	2.44	...	...	...
59.0	510	5.4	2.9	66.2	478.8	6.25	20.25	2.00	1.00	0.50	...	...	7.9	...	16	3.41	...	...	...
60.9	534	5.9	2.1	74.1	481.2	2.25	23.75	4.75	0.25	0.00	...	...	8.6	...	24	11.49	...	...	...
54.6	445	4.8	3.1	61.1	484.0	49.00	245.75	50.50	15.25	4.50	...	...	5.3	4.5	122	43.39	...	...	...

* December half a day short.

Appendix

Abstract of Results of Meteorological Observations taken at Stations in

FREETOWN, SIERRA LEONE.

Lat. 8° 29' N.

Month.	Readings of the Barometer.			Temperature of the Air.							Mean Daily Readings of				
	Mean reduced and corrected to 32°.	Highest reduced and corrected to 32°.	Lowest reduced and corrected to 32°.	Highest during Month.	Lowest during Month.	Range during Month.	Mean				Maximum in Sun's rays.	Minimum on Grass.	Hygrometer.		
							Of all the highest.	Of all the lowest.	Daily Range.	Approximate Temperature.			Dry Bulb.	Wet Bulb.	
January	
February	
March	
April	
May	
June	
July	
August	
September	
October*	...	29·839	29·867	28·854	91·0	68·0	23·0	87·4	72·0	15·4	79·7	139·2	71·2	82·1	78·8
November	...	28·936	28·954	28·941	92·0	69·0	23·0	88·2	73·0	15·2	80·6	135·9	71·9	82·1	78·9
December	...	28·938	28·956	28·930	90·5	68·5	22·0	88·0	73·8	14·2	80·9	133·0	71·9	82·6	79·3
Yearly Sums, Means, and Totals	...	29·238	29·259	28·908	91·1	68·5	22·6	87·8	72·9	14·9	80·4	136·0	71·6	82·2	79·0

Summary of Results of Meteorological Observations taken at Stations in

Cape of Good Hope ...	27	80·016	30·474	29·687	100·8	24·0	76·8	73·6	51·4	22·2	62·5	119·0	47·8	65·9	59·6
Fort Napier, Natal ...	2,200	27·683	28·235	27·229	100·4	31·0	69·4	76·5	50·5	26·0	63·5	...	...	68·7	60·9
Sierra Leone† ...	224	29·238	29·867	28·854	92·0	68·0	24·0	87·8	72·9	14·9	80·4	136·0	71·6	82·2	79·0

* Barometrical observations in October unreliable.

† Observations for three months only.

Long. 13° 9' Height above Sea 224 feet.

Cape of Good Hope, Natal, and Sierra Leone, in the Year 1874.

												Miles.				Inches.			
54.6	4.29	4.7	2.4	68.1	527.7	104.00	70.50	65.25	118.75	6.00	...	...	3.9	4.3	77	15.45	...	34 56 S.	18 27 E.
54.6	4.43	4.8	3.1	61.1	484.0	49.00	245.75	50.50	15.25	4.50	...	...	5.3	4.5	122	42.39	...	29 3 „	30 2 „
76.8	9.20	9.8	2.0	83.7	...	7.50	20.25	11.75	46.50	6.50	...	...	5.3	...	49	18.47	...	8 29 N.	13 9 W.

APPENDIX

Annual Abstract of Meteorological Observations

GIBRALTAR.

Lat. 36° 6' N.

Month.	Mean Pressure.*	Air Temperature.								Tension of Vapour.	Relative Humidity.		
		Hourly Means.		Daily Means.		Means of.		Abs. Min.		Abs. Max.		Mean.	Minimum.
		9 a.m.	9 p.m.	Simple.	Reduced.	Min.	Max.	Temp.	Day.	Temp.	Day.		
January ...	30.298	54.0	...	...	...	51.4	63.4	42.0	1st	69.0	18th	358	76.8
February ...	30.006	54.8	...	...	...	51.8	63.6	46.4	1st	70.2	17th	323	69.5
March ...	30.031	58.0	...	...	...	54.8	64.1	45.0	3rd	72.0	7th	354	70.0
April ...	30.036	61.2	...	...	...	57.6	67.7	52.5	10th	77.0	26th	396	73.5
May ...	29.979	68.9	...	...	...	65.9	76.0	58.5	1st	82.0	22nd	514	87.8
June ...	30.039	72.4	...	...	...	69.0	81.2	63.5	3rd	86.2	21st	443	58.0
July ...	30.020	74.0	...	...	...	70.8	82.8	65.0	7th	87.3	11th	553	59.7
August ...	30.034	77.2	...	...	...	74.0	87.4	69.0	9th	91.0	13th	633	65.4
September ...	30.057	74.5	...	...	...	72.5	81.3	69.0	25th	86.0	2nd	581	65.2
October ...	30.025	68.2	...	...	...	60.7	74.7	58.0	20th	85.0	9th	505	68.0
November ...	30.024	61.7	...	...	...	58.8	68.4	51.5	26th	77.0	6th	422	74.0
December ...	30.068	54.1	...	...	...	50.0	59.0	47.0	2nd	65.0	10th	322	74.0
Mean ...	30.051	64.9	...	...	...	61.4	72.5	55.0	...	78.9	...	452	68.5

MALTA.

Lat. 35° 53' N.

January ...	30.215	56.3	...	...	...	51.6	59.8	44.0	29th	64.0	6th	343	72.8	60.0	24th
February ...	29.820	56.2	...	...	...	50.0	59.6	43.0	3rd	69.8	24th	321	69.0	57.0	2nd
March ...	29.959	57.6	...	...	...	53.1	60.9	47.0	26th	71.2	12th	354	75.0	61.0	2nd
April ...	29.988	60.8	...	...	...	54.9	63.3	49.0	1st	67.6	23rd	468	85.6	75.5	1st
May ...	30.017	70.8	...	...	...	63.6	74.0	55.4	1st	81.8	23rd	617	79.0	51.5	27th
June ...	29.994	77.4	...	...	...	70.6	81.2	63.4	5th	90.0	16th	580	59.2	31.0	17th
July ...	29.971	81.1	...	...	...	74.3	85.9	69.0	1st	95.0	8th	667	60.0	33.6	8th
August ...	30.033	82.7	...	...	...	75.9	86.9	62.2	27th	91.0	4th	718	62.3	53.5	22nd
September ...	30.076	78.0	...	...	...	72.0	81.2	67.8	21st	88.2	2nd	677	68.6	57.8	6th
October ...	29.945	71.6	...	...	...	65.6	74.8	58.0	31st	80.4	22nd	539	67.0	55.1	3rd
November ...	29.930	65.6	...	...	...	59.9	68.5	54.8	28th	75.2	11th	470	74.0	63.2	14th
December ...	30.005	57.2	...	...	...	51.8	60.0	46.0	6th	69.8	3rd	374	78.6	61.8	1st
Mean ...	29.996	67.9	...	...	...	61.9	71.3	54.9	...	78.7	...	511	70.9	55.1	...

SCUTARI.

Lat. 41° N.

January ...	30.119	41.0	...	...	...	36.0	45.8	25.4	8th	56.2	22nd	216	81.5	58.0	13th
February ...	29.920	39.6	...	...	...	35.6	46.8	26.2	15th	60.0	11th	211	81.0	67.5	11th
March ...	30.012	37.6	...	...	...	34.6	46.4	26.2	17th	57.0	30th	207	81.7	62.4	17th
April ...	29.984	52.0	...	...	...	43.1	60.8	32.4	2nd	72.2	7th	301	73.3	59.4	7th
May ...	30.003	61.6	...	...	...	50.6	71.9	41.8	8th	82.4	30th	416	68.9	48.9	26th
June ...	29.924	76.4	...	...	...	62.0	87.6	54.4	6th	96.6	24th	563	55.7	47.8	28th
July ...	29.849	76.9	...	...	...	64.6	88.6	59.6	7th	94.4	18th	645	62.3	50.4	12th
August ...	29.941	75.5	...	...	...	63.1	85.5	58.4	29th	95.2	6th	576	59.5	49.5	6th
September ...	30.024	64.9	...	...	...	53.5	74.5	39.4	30th	90.4	1st	442	66.0	49.0	13th
October ...	29.935	63.2	...	...	...	53.1	71.3	41.2	27th	85.8	16th	440	72.2	41.3	16th
November ...	30.010	53.1	...	...	...	46.0	60.1	36.0	14th	69.4	23rd	334	78.2	62.8	24th
December ...	30.049	41.1	...	...	...	36.2	47.6	23.6	31st	66.4	4th	218	89.1	58.0	4th
Mean ...	29.981	56.9	...	...	...	48.2	65.6	38.7	...	77.2	...	381	71.7	54.6	...

* The observations are reduced to Sea-level, and to 32° Fahrenheit

No. VIII.

taken at Foreign Stations in the Year 1875.

Long. 5° 20' W. Height of Barometer Cistern above Sea 53 feet.

Mean Amount of Cloud.	Rainfall.			Weather.										Wind.									
	Total.	Maximum.	Day.	Number of Days of								Number of Observations under each Point.											
				Rain.	Snow.	Hail.	Thunder Storms.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.			
4.2	0.74	0.39	10th	4	...	...	...	1	15	10	2	0.5	7.5	5.5	0.5	...	4.0	2.5	10.5	...
4.2	2.87	0.72	21st	9	...	...	...	...	15	10	2	...	...	3.0	1.0	...	6.0	8.5	9.5	...
6.0	4.99	1.60	19th	12	...	...	2	...	9	16	3	...	15.5	2.0	1.0	...	3.0	4.5	5.0	...	
4.1	1.11	0.77	22nd	6	...	...	...	...	12	12	3	...	9.0	6.0	...	...	7.0	4.5	3.5	...
4.8	0.90	0.48	29th	4	...	...	1	...	13	9	1	...	15.0	6.0	...	...	6.5	3.5	...	...	
1.8	0.17	0.17	2nd	1	...	...	...	...	22	1	...	...	12.0	1.0	...	...	13.5	2.5	1.0	...
3.0	0.08	0.08	7th	1	...	...	...	...	19	6	...	...	13.0	2.0	...	...	11.5	2.0	2.5	...
2.9	0.00	0.00	...	...	...	...	...	...	21	6	...	...	16.0	4.5	...	...	7.5	1.0	2.0	...
3.8	0.00	0.00	...	...	...	...	...	...	15	6	...	...	15.0	3.5	0.5	...	7.5	3.5	...	...	
5.0	6.02	2.61	21st	9	...	...	1	...	13	13	2	...	7.0	1.0	...	...	15.5	3.5	2.5	1.5
4.9	9.77	6.38	24nd	8	...	...	...	...	12	11	1	...	11.0	0.5	...	...	8.5	6.5	3.5	...
6.3	7.61	0.95	16th	17	...	...	...	...	8	17	1	3.0	7.5	12.5	1.0	0.5	1.5	0.0	5.0	...
4.2	34.3	...	...	71	...	...	4	1	174	115	15	3.5	128.5	47.5	4.0	0.5	92.0	42.5	45.0	1.5

Long. 14° 30' E. Height of Barometer Cistern above Sea 70 feet.

4.0	1.23	0.54	2nd	8	...	...	...	...	18	6	...	1.0	5.5	0.5	5.5	0.5	5.5	0.5	15.0	...	...
6.0	3.56	1.40	13th	10	...	...	...	...	9	11	1	0.0	5.5	0.5	4.0	0.0	4.5	0.0	13.5	...	...
5.0	1.63	0.74	30th	12	...	...	...	...	11	13	...	0.5	7.0	0.0	5.0	0.0	3.0	0.0	15.5	...	...
4.5	0.69	0.20	4th	9	...	...	...	...	12	11	...	0.0	5.0	0.0	10.5	0.0	1.0	0.0	13.5	...	...
3.0	0.06	0.03	18th	3	...	...	1	...	15	6	...	0.0	15.0	0.0	6.5	0.0	2.0	0.0	7.5	...	...
3.0	0.00	0.00	...	...	...	...	...	...	14	3	...	0.0	8.5	0.0	8.0	0.0	0.5	0.0	13.0	...	...
2.0	0.00	0.00	...	...	...	...	...	...	19	3	...	0.0	11.5	0.0	7.5	0.0	3.0	0.0	9.0	...	...
2.0	0.00	0.00	...	...	...	...	...	...	23	1	...	0.0	14.5	0.0	1.0	0.0	4.0	0.0	11.5	...	...
4.5	3.30	2.10	28th	4	...	...	...	...	7	8	...	0.0	8.0	0.0	8.5	0.0	5.5	0.0	8.0	...	...
6.0	4.94	2.50	9th	13	...	...	3	...	2	13	...	0.0	3.5	0.0	8.0	0.0	7.0	0.0	12.5	...	...
6.0	3.12	1.94	28th	10	...	...	...	...	4	12	...	0.0	3.5	0.0	6.0	0.0	4.5	0.0	16.0	...	...
7.0	8.71	2.05	5th	16	...	...	...	...	2	22	...	0.0	8.0	0.0	4.0	0.0	3.5	0.0	15.5	...	...
4.4	27.24	...	...	85	...	...	4	...	126	109	1	1.5	95.5	1.0	71.5	0.5	44.0	0.5	150.5	...	...

Long. 29° 3' E. Height of Barometer Cistern above Sea 60 feet.

7.9	6.17	1.92	23rd	21	7	1	...	3	4	23	3	3.0	9.5	...	2.0	1.0	12.0	0.5	3.0	...
8.7	3.53	0.58	6th	21	8	3	...	...	1	24	1	2.0	16.5	2.0	2.0	...	3.0	...	1.5	1.0
8.2	6.12	2.20	22nd	20	11	...	...	...	4	24	4	3.5	18.5	1.0	0.5	0.5	4.0	1.0	1.0	1.0
6.1	1.74	0.77	15th	16	1	...	1	...	9	14	...	3.0	11.5	0.5	0.5	1.5	11.5	...	0.5	0.5
3.4	0.38	0.18	2nd	6	...	...	...	...	1	19	5	...	2.5	15.5	...	0.5	1.5	10.5	0.5	...
3.4	0.69	0.69	30th	1	...	...	...	...	1	20	3	...	0.5	23.0	...	...	1.0	5.5	...	...
4.1	4.22	1.40	28th	10	...	...	...	...	...	14	6	...	2.0	16.0	0.5	...	3.5	7.0	1.5	0.5
3.4	1.10	0.41	19th	7	...	...	...	...	...	18	3	...	1.5	20.5	0.5	...	2.0	6.0	...	...
4.9	3.61	0.95	4th	12	...	...	...	...	1	14	9	...	3.0	11.5	0.5	1.0	3.5	6.5	0.0	3.5
5.2	3.99	1.05	26th	13	...	...	...	...	4	13	13	3	2.5	7.0	1.5	4.0	2.0	10.5	0.5	1.0
6.3	3.41	0.58	3rd	17	...	...	1	2	...	8	14	5	0.5	7.5	3.0	5.0	2.0	7.0	1.5	2.5
7.6	7.78	1.53	6th	20	9	2	...	...	...	4	20	5	5.5	6.5	4.0	1.5	1.5	7.5	2.5	1.0
5.8	42.7	...	...	163	36	7	14	4	128	158	21	29.5	163.5	13.5	17.0	20.0	91.0	8.0	14.5	7.0

* April ½ day short. December ½ day short.

ARMY MEDICAL DEPARTMENT.

Appendix

Annual Abstract of Meteorological Observations

FORT NAPIER, NATAL.

Lat. 29° 3' S.

Month.	Mean Pressure.	Air Temperature.										Tension of Vapour.	Relative Humidity.		
		Hourly Means.		Daily Means.		Means of		Abs. Min.		Abs. Max.			Mean.	Minimum.	Day.
		9 a.m.	9 a.m.	Simple.	Reduced.	Min.	Max.	Temp.	Day.	Temp.	Day.				
January ...	29.819	73.1	...	...	...	58.5	81.9	52.0	14th	96.5	24th	58.4	68.8	49.5	24th
February ...	29.829	73.2	...	...	...	58.8	82.8	54.4	9th	102.5	27th	67.4	65.6	35.6	27th
March ...	29.875	74.7	...	...	...	57.2	81.5	48.0	26th	98.8	18th	528	59.6	41.2	17th
April ...	29.917	68.7	...	...	...	52.2	79.9	42.0	22nd	88.6	2nd	458	60.2	38.2	9th
May ...	29.951	64.8	...	...	...	47.8	78.0	38.3	30th	88.0	14th	397	54.8	45.3	12th
June ...	30.005	58.3	...	...	...	44.2	72.2	37.0	30th	83.0	9th	292	50.6	28.0	23rd
July ...	30.107	55.9	...	...	...	40.6	67.4	34.0	8th	80.0	25th	282	52.9	36.8	11th
August ...	29.954	60.9	...	...	...	43.5	77.9	32.2	12th	91.0	27th	308	44.5	27.6	28th
September ...	29.935	63.1	...	...	...	46.7	74.6	34.8	6th	98.0	21st	337	52.6	25.0	21st
October ...	29.972	65.4	...	...	...	52.8	76.2	41.0	6th	98.0	29th	362	55.6	25.8	10th
November ...	29.901	67.5	...	...	...	57.4	77.9	49.8	19th	97.0	23rd	496	70.0	50.0	25th
December ...	29.858	73.6	...	...	...	60.2	83.4	53.6	7th	99.7	15th	536	64.8	32.7	10th
Mean ...	29.927	66.5	...	...	..	51.6	77.8	43.1	...	93.4	...	429	58.3	36.3	...

FREETOWN, SIERRA LEONE.

Lat. 8° 29' N.

January ...	29.463	80.2	...	...	...	72.3	88.5	65.0	19th	96.0	17th	877	81.8	63.0	22nd
February ...	29.530	82.6	...	...	...	74.0	90.6	70.0	8th	94.0	24th	882	73.6	66.0	24th
March ...	29.982	83.0	...	...	...	74.0	91.0	71.0	2nd	98.0	5th	788	68.0	54.0	1st
April ...	29.821	83.0	...	...	...	74.4	91.9	72.0	12th	97.0	1st	919	74.0	63.5	9th
May ...	29.817	82.7	...	...	...	73.1	90.5	68.0	6th	94.0	7th	934	78.1	62.5	6th
June ...	29.645	81.4	...	...	...	72.3	88.5	61.0	29th	96.0	2nd	888	78.9	72.0	26th
July ...	29.867	77.9	...	...	...	70.2	84.0	68.0	18th	90.0	5th	763	78.6	73.0	1st
August ...	29.969	77.9	...	...	...	69.8	83.6	68.0	1st	88.0	12th	713	73.8	61.0	8th
September ...	29.973	79.4	...	...	...	70.0	86.3	67.0	21st	90.0	11th	760	72.2	57.0	8th
October ...	29.962	81.4	...	...	...	70.3	89.9	67.0	7th	97.0	19th	867	75.6	64.5	9th
November ...	29.926	82.4	...	...	...	70.7	89.3	67.0	30th	95.0	15th	878	76.0	66.0	22nd
December ...	29.920	82.1	...	...	...	71.5	89.3	67.0	18th	92.0	5th	873	76.4	54.0	25th
Mean ...	29.823	81.2	...	...	...	71.9	88.6	67.6	...	93.9	...	844	75.4	63.0	...

BARBADOS (ST. ANN'S.)

Lat. 13° 4' N.

January ...	...	79.0	...	...	...	70.3	84.5	68.4	17th	86.0	1st	698	68.2	57.5	18th
February ...	...	78.6	...	...	...	69.5	84.5	67.0	28th	85.4	13th	625	62.4	53.0	6th
March ...	30.051	79.6	...	...	...	69.2	85.4	64.0	6th	87.0	17th	618	58.5	50.7	12th
April ...	30.043	81.2	...	...	...	70.7	86.5	64.0	1st	89.0	25th	662	62.0	51.0	6th
May ...	30.043	83.2	...	...	...	73.0	88.0	71.0	4th	90.0	3rd	660	57.9	49.2	11th
June ...	30.102	83.7	...	...	...	74.5	89.1	71.0	30th	91.0	6th	712	59.8	49.9	1st
July ...	30.104	84.1	...	...	...	74.7	88.9	71.0	23rd	93.0	12th	759	64.0	53.5	5th
August ...	30.011	84.2	...	...	...	74.5	88.3	70.0	20th	93.0	10th	193	66.8	52.0	16th
September ...	29.978	83.2	...	...	...	74.0	87.8	72.0	3rd	92.0	4th	811	71.6	57.1	7th
October ...	29.985	82.5	...	...	...	73.6	87.0	72.0	17th	89.6	26th	800	72.4	59.4	7th
November ...	29.973	82.6	...	...	...	72.9	85.9	68.8	30th	87.8	23rd	734	67.0	54.6	26th
December ...	29.994	80.7	...	...	...	72.5	84.2	69.0	1st	87.0	14th	744	69.8	59.1	17th
Mean ...	30.008	81.9	...	...	...	72.4	86.7	69.0	...	89.2	...	717	65.0	53.9	...

* Barometrical readings 16th to 31st only.

No. VIII.—continued.

taken at Foreign Stations in the Year 1875.

Long. 30° 2' E. Height of Barometer Cistern above Sea 2,200 feet.

Mean Amount of Cloud.	Rainfall.			Weather.									Wind.								
	Total.	Maximum.	Day.	Number of Days of								Number of Observations under each Point.									
				Rain.	Snow.	Hail.	Thunder Storms.	Fog.	Clear Sky	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.	
7.1	4.19	1.32	9th	18	...	...	11	...	6	20	...	0.5	4.0	17.5	6.5	1.0	0.5	...	1.0	...
7.1	2.60	0.80	15th	16	...	...	13	...	7	18	...	0.5	3.5	14.5	6.5	2.0	...	...	0.5	0.5
6.8	2.36	0.39	16th	17	...	...	9	...	8	18	...	1.5	6.0	12.5	8.5	1.0	0.5	...	1.0	...
5.4	1.38	0.30	21st	7	...	...	4	...	12	13	1	1.0	4.5	16.0	6.0	1.0	0.5	1.0	...	...
3.0	0.86	0.33	3rd	2	...	...	2	...	20	7	...	0.5	3.5	16.0	7.0	0.5	...	1.5	2.0	...
4.0	0.48	0.27	12th	3	...	...	...	...	17	7	...	2.0	2.0	15.5	5.5	2.0	...	1.0	0.5	1.5
3.2	0.22	0.20	16th	2	...	...	...	...	20	7	...	1.0	5.5	13.0	6.5	3.5	1.0	...	1.0	0.5
1.6	0.00	0.00	...	...	...	...	...	...	26	3	2	0.5	4.5	15.0	6.5	0.0	1.5	1.0	1.5	1.5
6.1	1.12	0.27	24th	12	...	...	6	...	10	18	...	0.5	5.0	10.0	5.0	3.0	0.5	1.5	3.0	1.5
6.4	3.08	0.72	30th	18	...	...	10	...	11	19	...	0.0	5.0	13.5	5.5	4.0	0.0	0.5	1.5	1.0
7.4	8.07	1.61	6th	19	...	...	11	...	7	22	...	0.0	2.0	16.5	7.5	1.0	0.0	0.0	1.5	1.5
6.5	6.48	1.75	12th	14	...	...	7	...	9	18	...	0.0	6.5	19.0	5.5	0.0	0.0	0.0	0.5	0.0
5.4	30.34	...	...	128	...	...	73	...	153	170	3	8.0	52.0	179.0	75.0	19.0	4.5	5.5	14.0	8.0

Long. 13° 9' W. Height of Barometer Cistern above Sea 224 feet.

5.4	0.00	0.00	...	...	...	...	...	8	7	...	...	2.5	3.5	12.5	1.0	...	...	7.5	4.0	...
6.5	0.14	0.10	22nd	2	...	...	1	...	2	10	1	6.0	4.0	3.0	0.5	...	...	10.0	3.0	1.5
7.0	0.12	0.12	20th	1	...	...	...	...	3	16	1	15.5	2.5	1.5	...	...	...	6.5	5.0	...
6.8	2.00	1.10	13th	3	...	...	1	...	1	12	1	15.5	1.5	1.5	...	...	...	9.0	2.0	0.5
7.0	6.77	1.88	4th	13	...	...	4	...	...	13	...	15.0	1.5	9.0	...	...	...	3.5	1.0	1.0
7.1	17.97	3.50	28th	23	...	...	2	...	...	10	...	11.5	0.5	5.0	...	...	...	8.0	2.0	3.0
7.8	32.77	3.76	30th	27	...	...	1	...	...	20	4	7.5	0.5	2.0	...	...	...	18.5	...	2.5
7.8	24.45	4.18	2nd	25	...	...	...	...	...	20	...	6.0	0.0	2.0	...	...	1.0	21.5	...	0.5
7.2	18.3	6.92	1st	19	...	...	2	...	...	15	...	8.5	0.0	6.5	...	...	...	13.5	...	1.5
6.5	12.73	4.32	9th	16	...	...	2	...	...	9	5	8.5	0.5	11.0	...	...	0.5	8.5	0.5	1.5
6.1	5.40	1.45	19th	9	...	...	1	...	...	3	5	13.5	0.5	6.5	1.0	...	...	7.5	...	1.0
6.2	1.18	0.72	14th	3	...	...	2	...	...	2	7	15.5	3.5	7.0	...	...	...	4.0	...	1.0
6.8	121.8	...	...	141	...	...	16	...	16	142	24	125.5	18.5	67.5	2.5	...	1.5	118.0	17.5	14.0

Long. 59° 40' W. Height of Barometer Cistern above Sea 30 feet.

6.3	4.69	0.82	5th	26	...	...	...	1	15	2	...	00.0	31.0	...	...	...	...	...	...	...
5.6	1.32	0.13	6th	20	...	...	...	3	6	1	...	00.0	28.0	...	...	...	...	...	...	...
4.0	0.82	0.22	1st	12	...	...	...	4	7	...	...	00.0	31.0	...	...	...	...	...	...	...
4.5	1.16	0.30	10th	12	...	...	...	8	7	...	...	00.0	26.5	...	3.5	...	...	...	...	...
4.3	0.59	0.29	17th	5	...	...	...	3	4	...	...	00.0	28.0	2.0	1.0	...	...	...	...	...
4.4	2.14	0.82	29th	13	...	...	...	4	3	...	...	00.0	22.0	6.0	2.0	...	...	...	...	...
5.9	3.04	0.40	25th	22	...	...	3	...	2	6	...	00.0	24.0	6.0	1.0	...	...	...	...	...
5.7	4.90	0.72	23rd	19	...	...	...	...	5	7	1	00.0	12.0	9.0	8.0	...	...	...	...	2.0
6.3	6.56†	†	9th	21	...	...	6	...	4	15	3	00.0	20.0	6.5	1.5	...	1.0	1.0	...	...
6.8	7.39	1.92	21st	15	...	...	...	...	11	1	...	00.0	21.0	2.0	7.0	...	...	...	...	1.0
5.2	1.91	0.78	30th	11	...	...	...	3	1	...	...	00.0	24.5	1.0	4.0	...	...	...	...	0.5
5.3	4.28	1.96	1st	19	...	...	1	...	4	6	...	00.0	21.0	2.5	7.5	...	...	...	...	...
5.6	38.80	...	...	195	...	...	10	...	41	88	8	00.0	289.0	35.0	35.5	...	1.0	1.0	...	3.5

† Exclusive of 18 hours on 9th September, which flooded the rain-gauge, the ground being 2 ft. 9 in. under water.

Appendix

Annual Abstract of Meteorological Observations

NEWCASTLE, JAMAICA.

Lat. 18° 62' N.

Month.	Mean Pressure.	Air Temperature.										Tension of Vapour.	Relative Humidity.		
		Hourly Means.		Daily Means.		Means of		Abs. Min.		Abs. Max.			Mean.	Minimum.	Day.
		9 a.m.	9 p.m.	Simple.	Reduced.	Min.	Max.	Temp.	Day.	Temp.	Day.				
January	30.140	67.3	...	...	...	50.9	76.7	44.0	29th	83.0	23rd	511	72.0	58.0	3rd
February	30.114	67.9	...	...	...	...	78.4	...	...	85.0	22nd	586	75.5	48.5	4th
March	30.118	66.2	...	...	...	...	79.0	...	...	85.0	22nd	577	75.1	55.1	28th
April	30.065	67.1	...	...	...	...	78.2	...	...	86.0	15th	564	72.5	59.3	26th
May	30.064	69.3	...	...	...	...	80.8	...	...	90.0	7th	604	73.9	51.5	28th
June	30.103	72.5	...	...	...	...	84.0	...	...	95.0	7th	608	67.0	59.8	10th
July	30.034	72.1	...	...	...	...	87.1	...	...	97.0	13th	663	71.8	54.2	4th
August	30.028	73.7	...	...	...	...	85.0	...	...	90.0	6th	618	67.8	55.7	25th
September	30.016	71.3	...	...	...	...	82.2	...	...	90.0	19th	621	72.5	60.2	26th
October	30.005	71.9	...	...	...	56.0	80.4	55.0	31st	86.0	1st	582	68.6	56.7	13th
November	30.068	69.4	...	...	...	...	78.6	...	...	86.0	2nd	534	67.8	55.4	6th
December	30.016	65.4	...	...	...	...	76.0	...	...	81.0	2nd	536	85.5	62.0	5th
Mean	30.069	69.5	...	...	...	...	80.5	...	...	87.8	...	583	72.5	56.3	...

UP PARK CAMP, JAMAICA.

Lat. 17° 59' N.

January ...	29.992	80.0	...	...	...	64.6	94.2	63.7	23rd	94.6	30th	...	...	...	...
February ...	30.012	79.0	...	...	...	63.0	94.6	61.0	3rd	99.2	28th	...	...	...	...
March ...	30.012	83.3	...	...	...	65.0	91.9	63.0	3rd	95.2	27th	648	56.4	49.2	31st
April ...	30.080	81.6	...	...	...	64.8	95.3	59.0	21st	97.1	5th	578	50.3	42.5	9th
May ...	30.036	83.3	...	...	...	64.3	97.7	62.0	31st	99.0	23rd	616	53.1	41.8	14th
June ...	30.071	85.3	...	...	...	63.0	98.6	61.0	21st	100.0	28th	645	58.2	41.6	14th
July ...	30.026	85.7	...	...	...	64.2	99.8	62.0	24th	101.0	15th	641	49.4	39.6	20th
August ...	30.040	88.1	...	...	...	63.8	100.6	62.0	13th	102.0	23rd	618	44.0	38.0	24th
September ...	29.972	87.8	...	...	...	65.1	100.4	60.0	15th	104.0	3rd	724	54.1	41.8	18th
October ...	29.992	88.7	...	...	...	67.3	100.4	62.0	20th	101.0	14th	643	45.8	40.8	21st
November ...	29.999	88.6	...	...	...	64.5	100.4	62.0	25th	101.0	30th	679	48.9	44.1	1st
December ...	30.016	82.0	...	...	...	63.5	100.5	62.0	2nd	101.0	31st	746	68.4	45.3	29th
Mean ...	30.021	84.4	...	...	...	64.4	97.9	61.6	...	99.6	...	654	52.3	42.5	...

NASSAU, BAHAMAS.

Lat. 25° 5' N.

January ...	30.188	74.5	...	...	...	67.7	83.9	63.5	14th	86.3	8th	768	86.5	79.5	22nd
February ...	30.172	74.5	...	...	...	67.8	82.6	64.3	16th	86.8	22nd	748	84.5	72.2	10th
March ...	30.153	76.2	...	...	...	69.3	83.9	63.5	8th	88.5	14th	782	83.0	62.8	24th
April ...	30.102	75.6	...	...	...	67.3	83.2	60.5	18th	87.8	22nd	631	69.4	49.6	19th
May ...	30.089	79.8	...	...	...	71.0	86.1	67.3	18th	88.9	30th	723	69.4	57.7	6th
June ...	30.171	82.1	...	...	...	70.6	87.8	68.8	5th	91.5	24th	724	65.4	55.9	28th
July ...	30.157	84.5	...	...	...	74.1	88.5	69.1	8th	95.2	13th	756	63.4	56.2	21st
August ...	30.120	85.4	...	...	...	74.1	89.4	67.3	7th	92.2	23rd	753	61.3	54.7	23rd
September ...	30.107	85.2	...	...	...	74.7	87.5	72.4	22nd	89.4	28th	770	62.5	57.4	27th
October ...	30.097	81.7	...	...	...	72.8	84.5	69.2	13th	89.1	2nd	764	70.8	60.7	20th
November ...	30.137	79.0	...	...	...	70.0	82.4	64.2	3rd	86.2	8th	715	70.6	56.4	4th
December ...	30.163	74.6	...	...	...	64.7	76.0	49.2	15th	86.4	2nd	587	66.8	52.8	16th
Mean ...	30.138	79.4	...	...	...	70.3	84.6	64.9	...	89.0	...	727	71.1	59.6	...

No. VIII.—continued.

taken at Foreign Stations in the Year 1875.

Long. 76° 42' W. Height of Barometer Cistern above Sea 3,800 feet.

Mean Amount of Cloud.	Rainfall			Weather.								Wind.									Calms.
	Total.	Maximum.	Day.	Number of Days of								Number of Observations under each Point.									
				Rain.	Snow.	Hail.	Thunder Storms.	Fog.	ClearSky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		
1.3	1.81	1.10	19th	6	26	2	...	}	...	}	No record reliable.	}	}	}			
1.3	1.00	0.70	9th	2	...	...	...	...	26	1	...						
1.5	5.02	2.60	26th	9	...	...	...	1	25	2	...							
2.5	4.13	0.83	16th	10	...	...	...	1	15	1	1							
3.1	9.01	2.00	21st	16	...	...	...	...	12	2	...						
1.5	5.38	1.60	12th	10	...	...	...	...	22	...	...								
0.8	4.34	1.90	28th	11	...	...	...	...	27	...	...								
2.1	3.94	0.90	9th	13	...	...	...	...	20	1	...						
2.5	17.32	7.50	13th	12	...	...	...	...	20	4	3						
3.0	10.55	6.00	23rd	11	...	...	2	...	18	3	3								
1.7	2.12	1.00	5th	6	...	...	...	...	22	...	...								
3.0	9.15	1.50	11th	16	...	...	...	...	14	1	...						
2.0	73.77	...	...	122	...	...	2	2	247	17	7						

Long. 76° 56' W. Height of Barometer Cistern above Sea 235 feet.

2.4	1.22	0.85	19th	3	...	...	...	...	26	1	...	1.0	17.5	...	12.5	...	...	...	...	...
2.2	0.13	0.09	9th	2	...	...	...	...	27	...	...	0.5	13.0	0.5	14.0	...	...	...	...	...
3.3	1.86	0.81	31st	7	...	...	1	...	21	2	1	...	2.0	11.0	16.5	1.0	...	...	0.5	...
3.4	1.56	0.59	17th	6	...	...	1	...	20	3	...	...	2.0	0.5	27.5	...	...	...	...	...
5.3	6.33	2.10	20th	9	...	...	2	...	7	8	...	...	0.5	...	30.5	...	...	...	...	...
5.5	1.54	0.49	4th	5	...	...	6	...	3	4	...	0.5	0.5	1.0	27.0	1.0	...	...	...	...
7.3	1.03	0.56	8th	6	...	...	1	...	...	13	...	...	...	...	31.0	...	...	...	...	...
6.6	3.16	0.75	10th	13	...	...	14	...	1	10	2	1.0	5.0	...	25.0	...	...	...	...	...
6.9	8.55	4.00	13th	15	...	...	11	...	...	10	...	...	6.0	1.0	23.0	...	...	...	...	...
6.7	7.20	6.25	22nd	7	...	...	8	...	...	9	...	...	3.5	...	27.5	...	...	...	...	...
5.9	0.16	0.07	29th	4	...	...	...	...	3	6	...	...	...	...	30.0	...	...	...	...	...
6.9	5.98	2.25	25th	9	...	...	1	...	...	14	...	...	1.5	5.5	24.0	...	...	...	...	...
5.2	38.7	...	...	86	...	...	45	...	108	80	3	3.0	51.5	19.5	288.5	2.0	...	...	0.5	...

Long. 77° 21' W. Height of Barometer Cistern above Sea 44 feet.

5.3	0.52	0.18	31st	7	...	...	1	...	5	4	...	0.5	11.5	1.5	14.0	1.0	0.0	...	1.5	1.0
5.8	1.97	0.90	5th	5	...	...	...	...	5	6	...	0.0	8.5	1.0	13.5	...	0.5	...	3.0	1.5
5.9	0.64	0.56	26th	3	...	...	...	...	3	5	...	4.0	7.5	3.5	12.0	...	...	...	3.5	...
5.5	3.30	1.06	23rd	9	...	...	...	...	3	5	...	3.5	6.5	4.5	7.5	1.5	...	4.0	2.5	...
6.5	6.61	1.77	5th	11	...	...	5	...	3	7	...	2.0	2.5	3.5	7.0	3.5	2.5	2.0	2.5	0.5
6.1	4.46	1.90	30th	9	...	...	6	...	2	...	...	2.5	5.0	15.0	5.5	2.0	...	...	...	...
6.0	4.52	2.09	1st	12	...	...	1	...	2	12	...	0.0	4.5	9.5	13.5	...	...	...	...	3.5
5.5	4.52	1.20	7th	11	...	...	6	...	3	5	...	0.0	5.5	7.5	14.0	...	1.5	1.0	...	1.5
6.3	1.85	0.33	22nd	13	...	...	4	...	2	7	3	0.0	10.5	4.0	11.0	1.0	2.0	1.5	...	...
7.1	9.40	2.15	18th	15	...	...	3	...	...	13	1	1.5	11.0	2.5	8.0	1.0	1.5	2.5	3.0	...
5.5	3.62	1.86	12th	7	...	...	...	...	3	5	...	1.0	11.0	6.0	6.0	0.5	4.0	0.5	1.0	...
6.1	0.70	0.37	25th	3	...	...	1	...	2	6	1	2.0	10.5	5.5	1.0	2.0	3.5	3.0	3.5	...
5.9	42.1	...	...	105	...	...	29	...	33	79	5	17.0	94.5	69.8	113.3	12.5	16.0	14.5	20.5	8.0

Appendix

Annual Abstract of Meteorological Observations

BERMUDA.

Lat. 32° 17' N.

Month.	Mean Pressure.	Air Temperature.										Tension of Vapour.	Relative Humidity.		
		Hourly Means.		Daily Means.		Means of		Abs. Min.		Abs. Max.			Mean.	Minimum.	
		9 a.m.	9 p.m.	Simple.	Reduced.	Min.	Max.	Temp.	Day.	Temp.	Day.			Day.	
January ...	30.216	64.7	...	...	...	57.8	70.6	50.0	2nd	78.0	8th	.464	73.0	53.2	2nd
February ...	30.172	63.9	...	...	...	56.4	69.6	44.4	11th	77.8	4th	.459	75.0	50.6	13th
March ...	30.163	66.2	...	...	...	54.4	74.2	40.6	22nd	84.0	29th	.430	63.6	37.8	26th
April ...	29.835	66.5	...	...	...	56.4	72.2	42.0	20th	80.0	17th	.480	71.0	53.5	20th
May...	30.126	73.3	...	...	...	64.8	78.6	57.7	9th	83.4	23rd	.660	78.5	67.8	10th
June ...	30.210	76.8	...	...	...	68.2	82.0	61.1	3rd	87.2	25th	.886	71.0	56.5	28th
July ...	30.187	81.1	...	...	...	73.4	85.8	67.7	4th	88.8	16th	.784	70.8	49.8	21st
August ...	30.190	85.0	...	...	...	76.2	90.2	71.2	31st	94.8	16th	.812	65.6	59.0	16th
September ...	30.079	80.8	...	...	...	72.9	85.8	67.2	24th	91.8	2nd	.774	71.2	52.5	9th
October ...	30.052	77.8	...	...	...	70.5	81.3	60.8	30th	89.0	2nd	.707	74.2	56.1	25th
November ...	30.068	70.0	...	...	...	64.0	74.6	56.6	20th	81.1	8th	.502	67.4	54.5	10th
December ...	30.092	65.4	...	...	...	59.6	70.6	50.8	21st	80.5	26th	.446	69.8	53.6	19th
Mean ...	30.116	72.6	...	...	...	64.5	77.9	55.8	...	84.7	...	.800	70.9	53.8	...

SINGAPORE.

Lat. 1° 16' N.

January ...	29.316	82.4	...	...	...	70.7	...	68.3	24th	...	...	.973	85.0	75.0
February ...	29.319	81.3	...	...	...	70.0	...	67.4	3rd	...	...	1.010	90.0	85.0
March ...	29.316	82.7	...	...	...	70.8	...	69.4	13th	...	...	.965	89.6	81.8
April ...	29.288	84.1	...	...	...	72.0	...	69.5	11th	...	...	1.069	88.6	82.1
May ...	29.293	84.1	...	...	...	72.0	...	69.5	3rd	...	...	1.049	88.0	85.8
June ...	29.309	83.1	...	...	...	71.5	...	67.5	25th	...	...	1.109	85.5	79.8
July ...	29.310	84.0	...	...	...	71.9	...	67.2	16th	...	...	1.022	83.6	80.8
August ...	29.314	84.0	...	...	...	73.0	...	69.4	4th	...	...	1.026	84.2	77.8
September ...	29.321	81.0	...	...	...	73.3	...	68.4	13th	...	...	1.017	83.7	78.9
October ...	29.310	84.2	...	...	...	72.7	...	69.4	27th	...	...	1.026	82.6	79.1
November ...	29.319	82.7	...	...	...	71.6	...	68.5	19th	...	...	.986	85.5	78.0
December ...	29.317	81.0	...	...	...	70.1	...	67.4	21st	...	...	.926	86.0	73.6
Mean ...	29.311	83.0	...	...	...	71.6	...	68.5	...	...	...	1.017	86.0	79.8

HONG KONG.

Lat. 22° 16' N.

January ...	30.052	56.1	...	...	...	52.9	62.3	43.6	22nd	68.4	9th	.357	73.0	55.9
February ...	30.005	59.7	...	...	...	56.2	66.6	48.1	12th	73.8	10th	.435	79.2	62.7
March ...	29.948	66.9	...	...	...	61.7	74.7	48.2	3rd	85.4	26th	.565	80.0	44.8
April ...	29.877	71.4	...	...	...	66.4	78.2	58.6	1st	89.5	24th	.615	77.2	43.1
May ...	29.822	81.1	...	...	...	75.0	90.0	66.8	1st	101.5	20th	.836	73.2	46.1
June ...	22.722	85.2	...	...	...	79.9	91.7	74.0	9th	100.0	24th	.908	71.6	59.3
July ...	29.635	85.6	...	...	...	80.6	92.1	75.5	24th	99.0	6th	.969	75.8	59.5
August ...	29.648	86.6	...	...	...	79.5	95.3	76.2	25th	100.2	11th	.682	65.1	39.8
September ...	29.723	82.3	...	...	...	77.4	88.4	74.0	15th	94.8	10th	.640	72.8	58.9
October ...	29.829	77.9	...	...	...	72.8	83.8	67.2	12th	92.5	3rd	.644	64.4	52.1
November ...	29.996	70.2	...	...	...	65.6	76.1	61.2	14th	80.5	14th	.539	68.2	56.8
December ...	30.191	57.9	...	...	...	58.2	64.6	40.5	19th	71.3	10th	.365	75.9	65.0
Mean ...	29.871	73.4	...	...	...	68.4	80.3	61.1	...	88.1	...	.863	73.0	53.6

No. VIII.—continued.

taken at Foreign Stations in the Year 1875.

Long. 64° 47' W. Height of Barometer Cistern above Sea 151 feet.

Mean Amount of Cloud.	Rainfall.			Weather.									Wind.									
	Total.	Maximum.	Day.	No. of Days of								Number of Observations under each Point.										
				Rain.	Snow.	Hail.	Thunder- storms.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.		
7.7...	2.29	0.43	13th	17	...	...	...	...	...	1	19	...	2.5	5.0	0.0	0.5	0.5	14.0	1.5	6.0	1.0
7.7	2.21	0.51	18th	15	...	...	...	...	...	2	18	2	2.0	4.0	0.5	4.0	1.0	9.0	1.5	4.5	1.5
6.4	1.53	0.56	30th	10	...	...	...	...	...	7	15	...	5.5	2.5	2.0	1.0	0.5	14.0	2.0	3.5	0.0
6.0	4.09	1.29	29th	10	...	...	...	...	...	6	13	...	2.0	7.0	0.0	0.5	0.5	11.0	5.0	4.0	0.0
6.0	5.91	1.88	20th	10	...	...	...	1	...	9	16	...	2.0	4.0	0.0	3.5	2.0	15.5	3.5	0.5	0.0
5.0	2.07	0.43	20th	12	...	...	...	...	...	9	10	...	1.0	9.0	0.5	1.0	0.0	14.0	4.0	0.5	0.0
5.0	4.18	1.76	24th	8	...	...	...	...	...	7	10	...	1.0	2.5	0.0	5.0	1.0	11.5	3.0	7.0	0.0
4.5	2.57	1.50	31st	9	...	...	...	...	...	11	6	...	1.0	1.0	0.5	13.5	5.0	6.5	1.0	2.5	0.0
5.0	6.26	2.00	23rd	16	...	...	...	2	...	9	8	3	2.5	4.5	0.0	3.5	0.5	13.5	2.0	2.0	1.5
5.5	7.67	2.00	12th	19	...	...	...	...	...	9	13	2	5.0	1.5	1.5	5.0	1.5	13.0	0.0	3.0	0.5
5.7	1.87	0.32	30th	13	...	...	...	...	...	8	12	5	2.5	6.0	2.0	2.5	1.0	8.0	3.0	4.5	0.5
6.5	3.32	1.55	17th	10	...	...	...	1	...	6	16	3	3.5	3.5	1.0	1.0	0.5	7.5	3.0	4.5	6.5
5.3	43.97	...	...	149	...	...	...	6	...	85	156	15	30.5	50.5	8.0	41.0	14.0	127.5	29.5	42.5	11.5

Long. 105° 31' E. Height of Barometer Cistern above Sea 110 feet.

No records.																						
6.6	2.54	1.18	14th	12	...	...	3	...	6	6	...	...	...	28	...	...	...	...	...	...	...	...
5.3	6.43	2.73	14th	14	...	...	3	...	7	6	1	...	...	31	...	...	...	...	...	...	...	...
5.6	18.69	2.96	7th	28	...	...	14	...	5	13	...	...	...	...	...	...	...	...	...	...	...	...
4.9	6.99	1.43	22nd	21	...	...	7	...	6	4	...	...	...	...	...	...	...	...	30	...	...	...
5.2	4.65	1.17	31st	23	...	...	6	...	7	5	...	...	...	...	...	...	...	...	31	...	...	...
4.7	7.58	1.49	28th	19	...	...	6	...	10	8	...	...	...	...	...	...	...	...	30	...	...	...
4.8	3.90	1.25	15th	11	...	...	4	...	8	2	...	...	...	...	...	...	...	...	31	...	...	...
4.1	7.03	1.90	14th	13	...	...	3	...	14	3	...	...	...	...	...	...	...	...	31	...	...	...
4.4	8.03	2.03	21st	13	...	...	7	...	10	2	...	...	...	...	...	...	...	...	30	...	...	...
3.5	8.85	3.05	27th	19	...	...	5	...	13	3	...	...	...	...	...	...	...	...	31	...	...	...
4.5	9.42	1.35	23rd	22	...	...	8	...	9	2	...	...	...	...	...	...	...	...	30	...	...	...
5.0	7.00	2.03	16th	18	...	...	6	...	7	4	...	...	...	31	...	...	...	...	...	...	...	...
4.8	90.11	...	...	213	...	...	72	...	102	58	1	...	...	90	...	...	...	...	244	...	...	...

Long. 114° 9' E. Height of Barometer Cistern above Sea 43 feet.

5.8	3.46	0.82	15th	12	...	...	...	..	12	17	...	2.5	10.0	7.0	0.5	...	...	2.5	5.0	3.5
7.0	0.37	9.26	28th	4	...	...	...	2	8	18	...	1.0	6.5	15.0	0.5	...	...	1.5	1.5	2.0
6.8	2.98	2.02	29th	6	...	...	1	...	6	18	...	1.0	2.5	16.5	2.5	...	...	3.0	0.5	5.0
7.2	6.74	1.77	15th	12	...	...	...	1	7	21	...	...	4.0	16.0	1.0	0.5	...	1.0	3.5	4.0
6.4	14.40	7.92	31st	7	...	...	2	...	5	12	1	...	...	15.5	0.5	...	1.5	9.0	1.5	3.0
5.3	14.57	4.92	10th	21	...	...	2	...	2	13	...	...	...	11.0	3.0	3.5	3.0	9.0	...	0.5
7.2	18.36	4.50	22nd	19	...	...	3	...	4	16	1	0.0	0.0	13.0	1.5	2.5	5.0	9.0	...	0.0
4.0	2.50	1.05	31st	8	...	...	3	...	17	5	...	...	1.0	6.5	1.5	3.0	5.5	6.5	...	7.0
6.5	14.06	4.15	17th	16	...	...	2	...	5	12	...	...	3.0	21.0	0.0	0.5	1.5	0.0	...	4.0
4.0	4.24	1.24	1st	11	...	...	...	...	18	8	...	...	3.5	5.0	18.5	0.0	0.5	1.0	0.5	...
3.7	0.35	0.35	30th	1	...	...	...	...	15	7	...	...	1.5	5.5	20.0	0.0	0.0	0.5	0.0	...
3.5	2.94	1.40	26th	6	...	...	...	...	18	8	...	...	6.0	9.0	11.5	0.5	0.0	0.5	1.0	1.5
5.6	84.9	...	...	123	...	...	13	3	117	155	2	15.5	48.5	171.5	11.5	10.5	18.5	43.0	13.5	34.5

Summary of Results of Meteorological Observations

Stations, with their Height above the Sea.			Mean Pressure.*	Air Temperature.								Relative Humidity.			
				Hourly Means.	Means of		Abs. Min.		Abs. Max.		Tension of Vapour.				
					9 a.m.	Min.	Max.	Temp.	Day.	Temp.	Day.	Mean.	Min.		Day.
African, Mediterranean.															
Gibraltar	...	53	30.051	64.9	61.4	72.5	42.0	1 Jan.	91.0	12 Aug.	.452	68.5	27.3	23 June	
Malta	...	70	29.996	67.9	61.9	71.3	43.3	3 Feb.	95.0	8 July	.511	70.9	31.0	17 June	
Scutari	...	60	29.981	56.9	48.2	65.6	23.6	31 Dec.	96.6	24 June	.381	71.7	41.3	16 Oct.	
African, Indian.															
Natal	...	2,200	29.927	66.5	51.6	77.8	32.2	12 Aug.	102.5	27 Feb.	.429	58.3	25.0	21 Sept.	
Sierra Leone	...	224	29.823	81.2	71.9	88.6	61.0	29 June	98.0	5 Mar.	.844	75.4	54.0	25 Dec.	
America & W. Indian.															
Barbadoes	...	30	30.008	81.9	72.4	86.7	64.0	5 Mar.	93.0	19 Aug.	.717	65.0	49.2	11 May	
Newcastle, Jamaica	...	3,800	30.069	69.5	...	80.5	...	...	97.0	13 July	.583	72.5	48.5	4 Feb.	
Up Park Camp, Jamaica	...	235	30.021	84.4	64.4	97.9	59.0	21 April	104.0	3 Sept.	.654	52.3	38.0	24 Aug.	
Nassau, Bahamas	...	44	30.138	79.4	70.3	84.6	49.2	15 Dec.	95.2	13 July	.727	71.1	49.6	19 April	
Bermuda	...	151	30.116	72.6	64.5	77.9	40.6	22 Mar.	94.8	16 Aug.	.600	70.9	37.8	26 Mar.	
Singapore	...	110	29.311	83.0	71.6	...	67.2	16 July	..	...	1.017	86.0	73.6	23 Dec	
Hong Kong	...	43	29.871	73.4	68.4	80.3	40.5	19 Dec.	101.5	20 May	.663	73.0	39.8	23 Aug.	

* The observations are reduced to Sea-level, and to 32° Fahrenheit.

No. VIII.—*continued.*

taken at Foreign Stations in the year 1875.

Mean amount of cloud.	Rainfall.			Weather.									Wind.										Latitude.	Longitude.
	Total.	Max.	Day.	No. of days of									No. of Observations under each point.											
				Rain.	Snow.	Hail.	Thunder Storms.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.				
4.2	34.30	6.38	24 Nov.	71	...	...	4	1	174	115	15	3.5	128.5	47.5	4.0	0.5	92.0	42.5	45.0	1.5	36	6 N.	5 20W.
4.4	27.24	2.50	9 Oct.	85	...	...	4	...	136	109	1	1.5	95.5	1.0	71.5	0.5	44.0	0.5	150.5	0.0	35	53 N.	14 30 E.
5.8	42.70	2.20	22 Mar.	163	36	7	14	4	128	158	21	29.5	163.5	13.5	17.0	20.0	91.0	8.0	14.5	7.0	41	N.	29 3 E.	
5.4	30.34	1.75	12 Dec.	128	...	...	73	...	153	170	3	8.0	52.0	179.0	75.0	19.0	4.5	5.5	14.0	8.0	29	3 S.	30 2 E.
6.8	121.8	6.92	1 Sept.	141	...	...	16	...	16	142	24	125.5	18.5	67.5	2.5	0.0	1.5	118.0	17.5	14.0	8	29 N.	13 9 W.
5.6	38.80	*	9 Sept.	195	...	...	10	...	41	88	8	0.0	289.0	35.0	35.5	0.0	1.0	1.0	0.0	3.5	13	4 N.	59 40 W.
2.0	73.77	7.50	13 Sept.	122	2	2	247	17	7	†	†	†	†	†	†	†	†	†	†	18	62 N.	76 42 W.
5.2	38.70	6.25	22 Oct.	86	...	...	45	...	108	80	3	3.0	51.5	19.5	288.5	2.0	0.0	0.0	0.5	0.0	17	59 N.	76 56 W.
5.9	42.10	2.15	18 Oct.	105	...	...	29	...	33	79	5	17.0	94.5	69.0	113.0	12.5	16.0	14.5	20.5	8.0	25	5 N.	77 21 W.
5.3	43.97	2.00	23 Sept.	149	...	...	6	...	85	156	15	30.5	50.5	8.0	41.0	14.0	137.5	29.5	42.5	11.5	32	17 N.	64 47 W.
4.8	90.11	3.05	27 Oct.	213	...	...	72	...	102	58	1	0.0	90.0	0.0	0.0	0.0	244.0	0.0	0.0	0.0	1	16 N.	105 31 E.
5.6	84.90	7.92	31 May	123	...	...	13	3	117	155	2	15.5	46.5	171.5	11.5	10.5	18.5	43.0	13.5	34.5	22	16 N.	114 9 E.

* See Abstract Barbadoes.

† Not reliable.

APPENDIX No. IX.

THE ALEXANDER MEMORIAL FUND.

COMMITTEE.

- Sir WILLIAM M. MUIR, K.C.B., M.D., Hon. Physician to the Queen, Director-General, *President*.
 Sir T. GALBRAITH LOGAN, K.C.B., M.D., Hon. Physician to the Queen.
 Surgeon-General T. G. BALFOUR, F.R.S.
 Surgeon-General T. LONGMORE, C.B., Hon. Surgeon to the Queen, Professor of Military Surgery.
 Deputy Surgeon-General J. A. BOSTOCK, C.B., M.D., Hon. Surgeon to the Queen.
 Deputy Surgeon-General W. J. FYFFE, M.D.
 Surgeon-Major F. S. B. F. DE CHAUMONT, Professor of Military Hygiene.
 R. LAWSON, Esq., M.D., Inspector-General of Hospitals.
 Surgeon-General W. RUTHERFORD, C.B., M.D.
 Surgeon-General W. MUNRO, C.B., M.D.
 Deputy Surgeon-General Sir ANTHONY D. HOME, K.C.B., *V.C.*
 Surgeon-Major FREDERICK ROBINSON, M.D., Scots Fusilier Guards.

At a meeting of the Committee, held on the 8th of April 1876, at the Office of the Army Medical Department, 6, Whitehall Yard, it was determined that the Alexander Memorial Prize of 50*l.*, and a Gold Medal of the value of 10*l.*, be offered for the best Essay—

“On the influence of drinking-water in originating or propagating enteric fever, diarrhoea, dysentery, *and** cholera: to be illustrated, as far as possible “by instances which have come under the personal observation of the author.”

The Essay to be legibly and clearly written, superscribed with a brief motto, and accompanied by a sealed envelope similarly superscribed, containing the name and address of the author.

Essays to be despatched to the President, Alexander Memorial Fund Committee, on or before the 31st December 1878.

The competition to be limited to Executive Medical Officers of the Army on full-pay.

The relative merits of the Essays to be determined by Assessors selected by the Committee.

The prize to be awarded to the writer of the best Essay offered, without reference to the number of competitors, provided the writer has complied with the prescribed conditions.

* Not *or* cholera, as was previously announced.

3 Gal
1 +

3 Gul
1 +



3 2044 103 001 459